

SHOWTIME! MOVIES IN iTunes, NEW IPODS

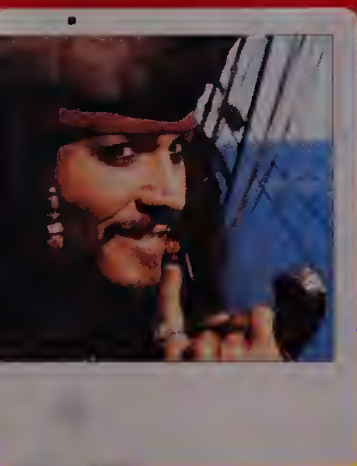


Macworld

www.macworld.com | November 2006

Inside the **MAC PRO**

We Test, Review,
and **Dissect**
Apple's New
Quad-Core
Powerhouse



PLUS

New 24-Inch iMac

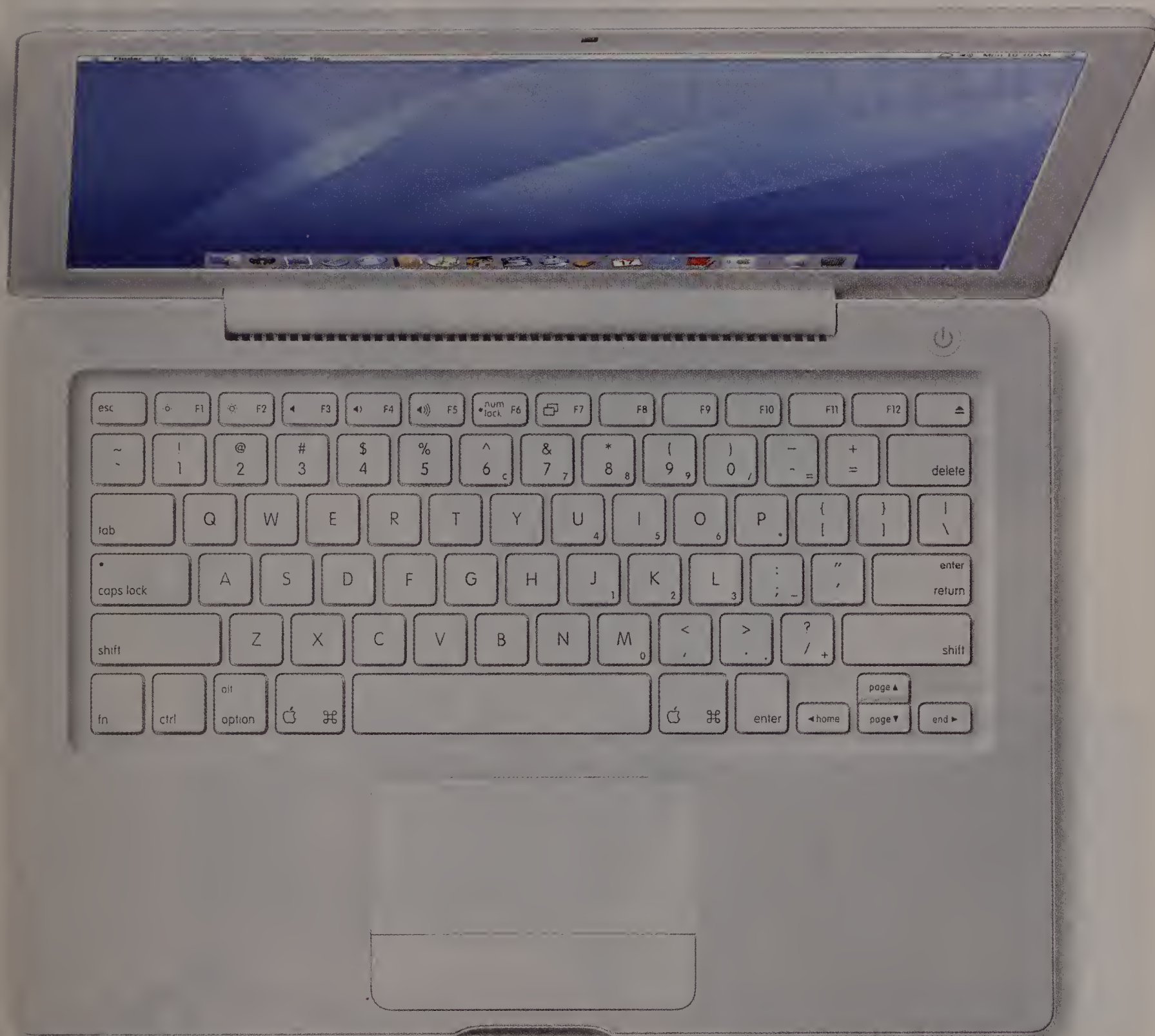
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COVER STORY

50 Inside the Mac Pro

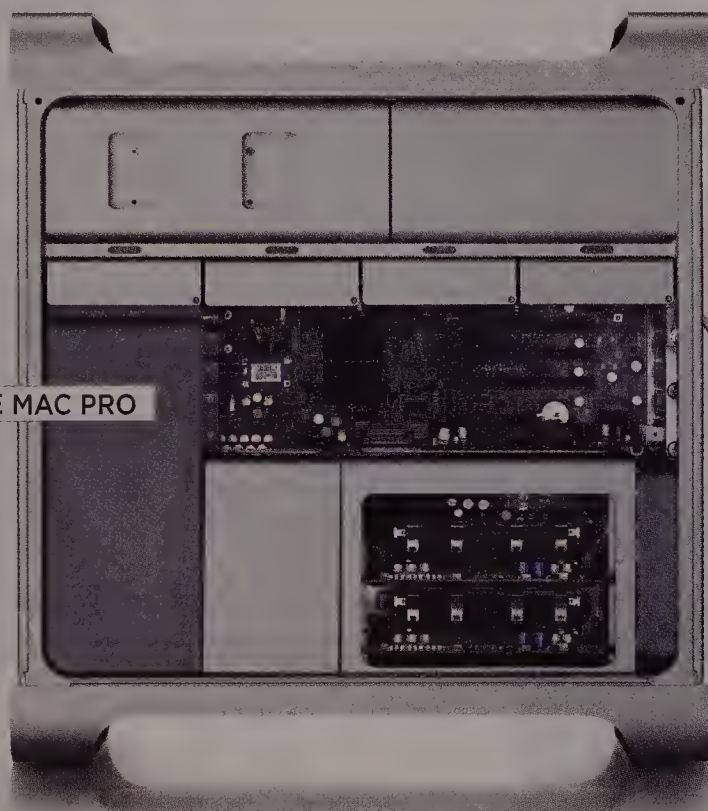
Apple's new Intel-based desktop tower—the Mac Pro—is here. How does it compare to the Power Mac it replaces? We've got all the details: an in-depth review, plus explanations and benchmark tests of the new CPUs, RAM, hard drives, and graphics cards.

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FRANKLIN N. TESSLER, MD

Plenty of things in life are painful—but using your Mac shouldn't be one of them. Learn how to avoid potential injury by setting up your workspace correctly and eliminating repetitive actions.



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Photograph by Peter Belanger

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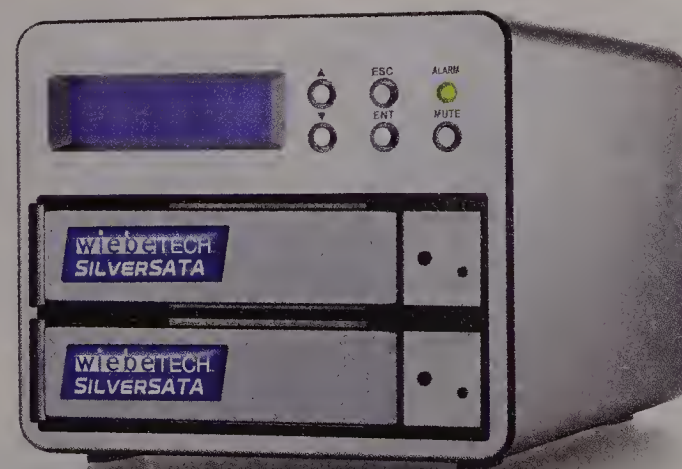
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Apple's slowly but surely expanding from your desktop to your living room.

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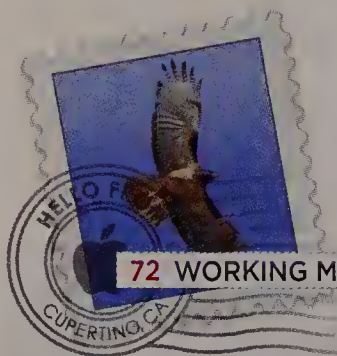
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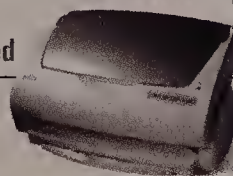


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Apple's Home Run

As Apple was conquering most of the world with the iPod and iTunes, it overlooked one bit of territory: the living room. While iLife software and iPod hardware have made us masters of creating and consuming digital media at our desks and on the go, getting at that media from our couches or easy chairs is still too difficult.

But over the past couple of years, Apple has been hinting that it *does* have designs on the room where most of us watch movies and TV and listen to music. With its introductions of the latest iPods and a new version of iTunes, plus a tantalizing first look at its forthcoming "iTV" home media box, Apple's plans have become a good bit clearer.

Fall iPod Fashions

The meat of Apple's recent round of announcements—timed to give retailers an early present for the holidays—was the introduction of new versions of the iPod, iPod nano, and iPod shuffle (see page 15). Having seen and played with them all, I'm confident it's going to be another record-breaking holiday season for Apple and its resellers.

The new full-size iPods are, at first glance, modest upgrades. But it's worth noting that the \$249 30GB model is the lowest-priced full-size iPod ever, and that the \$349 80GB model holds more songs, photos, and videos than any other iPod ever. With the introduction of downloadable games, the new iPods are more effective time-wasters than ever before.

Last year, the company replaced the hugely popular multicolored iPod mini with the ultraslim but monochromatic iPod nano. Despite the howls from the mini's many fans, the nano was a huge hit. So what does Apple do this year? It releases a new set of nanos that are even slimmer than the first generation and cloaks them in sleek metallic jackets that come in five bright, mini-esque colors. Mini fans, rejoice.

Then there's the new iPod shuffle. The original shuffle's tiny size blew us all away. But the new iPod shuffle is a fraction of the original's size. It's basically the size of Apple's clip-on wired iPod remote—except the remote *is* the iPod. It's the music player I'll be listening to when I'm mowing my lawn next spring.

All Hail iTV

The iPods might get all the attention in stores this holiday season, but next year another Apple product will make an even bigger splash. The \$299 "iTV"—a code name, Apple says, and not the product's final moniker—was my hands-down favorite of Apple's latest announcements. When it finally arrives in stores (sometime in

the first quarter of 2007), I can finally break down the wall between my Mac and my home theater.

I've been hacking at that wall for years. I've been somewhat successful when it comes to audio. Slim Devices' excellent Squeezebox (★★★★; macworld.com/0959) lets me play my iTunes library through my stereo, using an interface—a remote control!—that's actually designed for the living room.

But when it comes to videos and photos, that wall is still there. When the Mac mini arrived last year, I thought it might be the answer. But that original mini didn't come with a remote control, and the software for third-party remotes didn't work well enough. The second-generation mini, with its Front Row software and Apple Remote, got me closer, but I still have to break out the keyboard and mouse too often. And getting Mac video to display properly on a digital television is still more of a black art than a science.

The solution is something like a TiVo—a home-entertainment computer that never *acts* like a computer. When you use TiVo, all you ever see is a slick, remote control–driven interface; you don't care that it's running Linux.

What I've needed from Apple or someone else is a small box that connects easily to my home-entertainment hardware and my iTunes media, and that uses a full-featured version of Front Row as an interface. From what I can tell, the iTV is that box.

The prototype Steve Jobs displayed looks like a squashed Mac mini, so it will make an easy fit next to a digital TV or home theater. With digital-video and -audio outputs and support for wireless and wired networking, the iTV will be the bridge between the music and photos on your Mac and the hardware in your living room. It will let you watch the iMovies you've made, as well as the TV shows and (now) movies you've bought on the iTunes online store—all from your favorite couch or chair.

Add it all up and 2007 is shaping up to be a great year for people who, like me, enjoy sitting on their couch with a remote in hand. As a result, it's looking like it might be another good year for Apple, too. □

Which new iPod is on your holiday wish list? Will you be in line with me when the iTV comes out? Come on over to macworld.com/forums and let me know.

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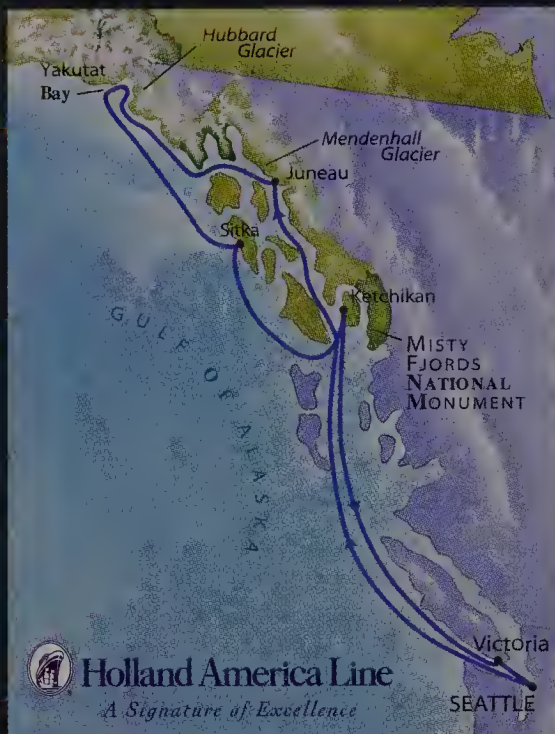
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November 2006, Volume 23, Issue 11

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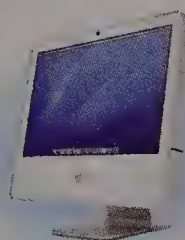
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FEEDBACK

Hidden Treasures

Some things in the Mac world are predictable, others not so much. Take the August issue of *Macworld*. Dan Frakes's monthly *Mac Gems* column is one of our most popular regular features. So you didn't have to be Jeane Dixon to predict that our August feature, in which Frakes collected 82 of his all-time favorite Gems, would be a big hit with readers. On the not-so-predictable side of the ledger was Apple's last-minute release of its MacBook laptops. While that might have been a surprise, your strong responses to our coverage of it weren't. □

Gemology

ROBERT ORLANDO

You included the typing utility Text Expander (★★★★½; macworld.com/1430) in "Software Jackpot" (August 2006). I was surprised and disappointed that you did not also include TypeIt4Me (www.typeit4me.com). TypeIt4Me has been around for a long, long time, and the current version is outstanding. It deserves at least a mention. If you aren't aware of this gem (and I'd be utterly surprised if you weren't), you should give it a look-see.

Thanks for the note. That article was meant to be a "greatest hits" of Mac Gems (the monthly magazine column and the Weblog). As such, I included only those products that I've previously covered in Mac Gems. That includes Text-Expander but not TypeIt4Me. That said, Type-It4Me is a solid program, and I hope to give it a look in the future.—Dan Frakes

MARTIN HELLMAN

Thank you for covering two of my favorite little-known software gems: HairerSoft's Amadeus audio processor (★★★★½; macworld.com/1405) and Lemke Software's GraphicConverter (★★★★½; macworld.com/1423) for photo editing. A bit of advice about GraphicConverter: when purchasing, you have the option of ordering Hagen Henke's third-party manual. Do it! The built-in manual is only marginally useful, and Hagen's is excellent. Without it, you might not understand many of the program's options.

Graphics Pros, Intel Macs

BOB HOOT

I recently decided I needed a new laptop and opted for the 2GHz MacBook Pro (★★★★; macworld.com/1677). I am a graph-

ics professional and use Adobe Creative Suite 2 and QuarkXPress 7 regularly. This machine runs both apps noticeably faster than my old G4 PowerBook. True, the MacBook Pro is not as fast as my G5 tower—but I didn't expect it to be. My biggest lament about the MacBook Pro is the loss of Classic. I ran a couple of printer utilities in Classic on my old PowerBook, but I now have to run them on an old G4 machine. Otherwise, I have no complaints.

JENNIFER HUGHES

I wish I had read Matt Blitz's letter "No Reason to Switch" (*Feedback*, August 2006) before I switched to an Intel MacBook. I was so looking forward to the speed increase of a new 2GHz processor versus the 700MHz in my old iBook. But the MacBook runs my Adobe apps *so* slowly that my productivity has gone down. It's extremely frustrating. I wish Apple and Adobe had synchronized their releases.

Opening the Windows

JIM SCHWARTZ

The "Emulation, Virtualization, and Dual-Booting" table in "Living in a Windows World" indicates that Virtual PC 7 won't run Linux. That is not true. I run it all the time. As proof, check out the screenshot.



BARBARA ITALIE

One more bit of advice about sharing files between Macs and Windows PCs: Windows file names are case sensitive. So not only do you have to make sure you've added the appropriate file extension, but you also need to make sure it's lowercase. If the extension is uppercase, it won't work.

Write Yourself a Note

CHRIS MANKE

About your tips in "How to Do a To-Do List" (*Working Mac*, August 2006): I've found it quick and convenient to keep my lists using Stickies notes. I create a note for each category and context (@computer, for example), and then type my to-do lists inside the appropriate note. That way, I can color-code the notes, collapse them to just see the note title, sort them, edit fonts, and so on. I often just leave the pile of Stickies notes collapsed in a corner of the screen.

Personality Crisis

MEL BECKMAN

Tony Thompson's letter in *Feedback* (August 2006) states that it is OK to give somebody else a copy of a copyrighted work as long as it is "for personal use." This is a common misconception, but it's dead wrong. Acting on this mistaken belief could subject you to civil fines and possibly even imprisonment. The "person" in "personal use" is the original purchaser of the copyrighted work, *not*

CORRECTIONS

Cast Easy, one of the tools listed in "Software Jackpot" (August 2006), has been renamed. It's now called Cast Life, and it's available from www.meddicatsoft.com.

friends and acquaintances of that purchaser. The fair use privilege lets the original purchaser make backup copies, change media formats and playback times, and create compilations (mixes), but only for his or her personal use—not for anyone else's. For a concise account of what fair use is and isn't, see the Electronic Frontier Foundation's article "Understanding Your Rights: The Public's Right of Fair Use" at www.eff.org/cafe/gross1.html.

Death to iPod Killers

STEVE BASILE

When will the media stop calling every new MP3 player from Sony, Creative, and others "iPod killers"? Since none of them has even seriously challenged the iPod so far, wouldn't "iPod challenger" or "iPod competitor" be more accurate?

The Small, Small Screen

BILL SHAW

Regarding Jason Snell's blurb about HandBrake (*Hot Stuff*, August 2006): I do

not like watching videos or films on my iPod. That doesn't make me a skeptic. That makes me a realist.

Raw versus JPEG

SCOTT HOOBER

In "Weighing the Pros of Raw" (*Digital Photo*, August 2006), author Ben Long mentions that some cameras offer a Raw + JPEG mode. My camera, a Nikon D50, offers that choice. But the only type of JPEG allowed in that mode is what Nikon calls Basic. That means 16:1 compression, as opposed to 8:1 for Normal or 4:1 for Fine. In Raw + JPEG, the JPEG copy is only for backup, for downloading and looking at images online, or for quickly sending images via e-mail.

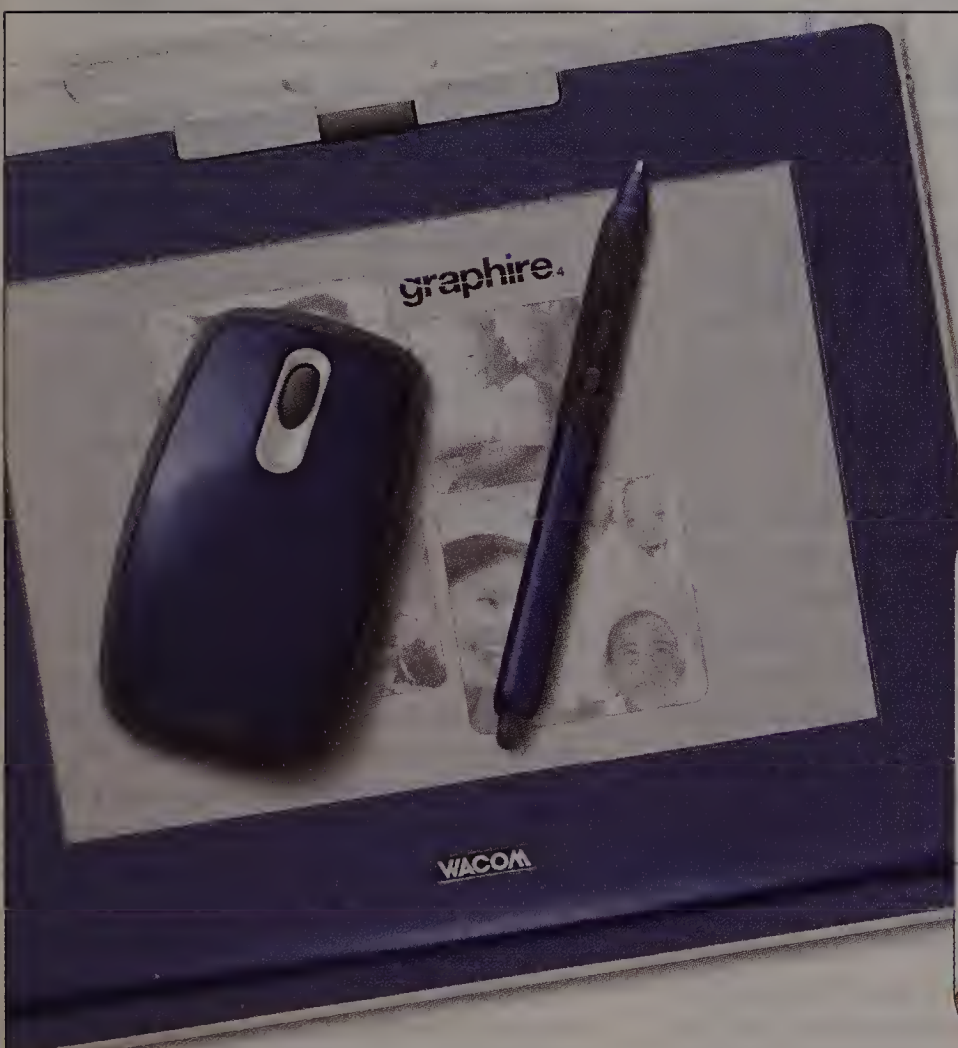
You're right about the D50. But a lot of cameras give you full-quality JPEGs or a choice of any JPEG mode alongside the Raw mode. Many photographers actually shoot both formats, because they ultimately want high-quality JPEGs. But if an image comes out with bad white balance, they can fall back on the Raw copy.—Ben Long

For the Record

SCOTT DAVISSON (MYOB US)

Gary Stein's letter in *Feedback* (September 2006) incorrectly claimed that MYOB offers no customer support for FirstEdge. While FirstEdge is a straightforward product, accounting can still be intimidating for a small business. So, since August 2005, we've offered 30 days of complimentary support to help our customers get started. We even call each new FirstEdge customer to let him or her know about this benefit. Thanks for the opportunity to set the record straight.

Post comments on our forums (www.macworld.com); send them by mail to Letters, *Macworld*, 501 Second Street, 5th Floor, San Francisco, CA 94107; or send them by e-mail to letters@macworld.com. Include a return address and daytime phone number. Due to the high volume of mail we receive, we can't respond personally to each letter. We reserve the right to edit all letters and posts. All published letters and forum comments become the property of *Macworld*.



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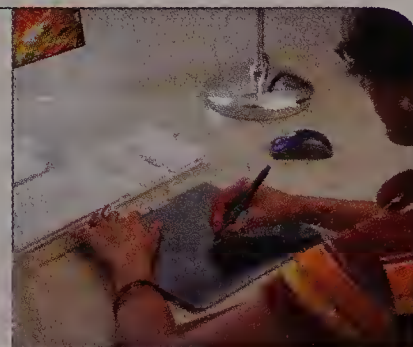
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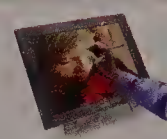
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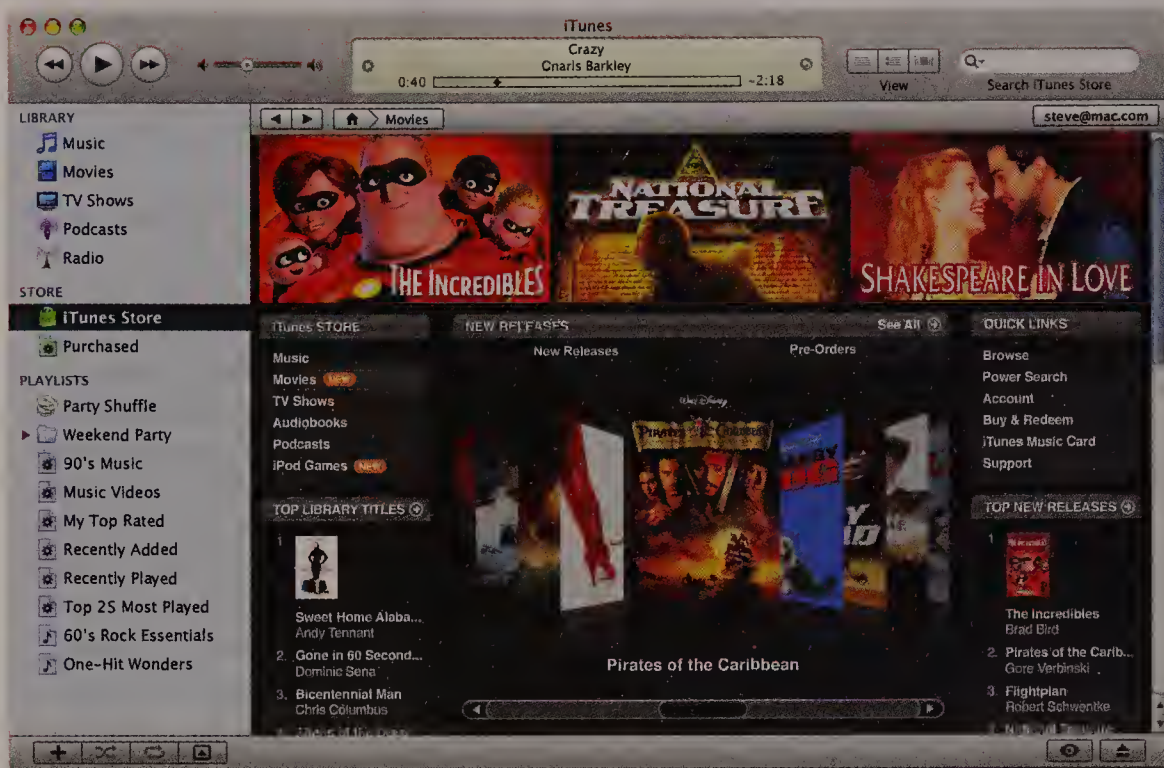


macbeat

WHAT'S NEW

WHAT'S IN THE PIPELINE

WHAT'S HOT



Apple Goes to the Movies

iTunes Store Brings Films to the Mac, the iPod, and the Television

BY DAN FRAKES

Apple launched the iTunes Music Store modestly enough in 2003 with 200,000 songs. Since then, the company has added many more tracks and sold more than 1.5 billion of them. With the addition of TV shows, short films, and video podcasts over the past year, Apple has become more of a media company. So it wasn't that big a surprise when Steve Jobs introduced the next stage of development—and in the process quietly dropped the word *Music* from the store's title—with the addition of full-length movies to Apple's download repertoire. At this special September event, he also made clear the company's intentions to venture out of "the den"—the term Jobs

used to describe the room centered around a computer—with a preview of a new streaming-media product, the "iTV." Clearly, Apple is no longer content with dominating the digital music market. It wants a chunk of your living room as well.

A Taste of Hollywood

Apple launches its movie downloads with more than 75 films from four studios—Miramax Films, Pixar Animation, Touchstone Pictures, and Walt Disney Pictures—all of which are divisions of Disney (where Jobs happens to have a seat on the board of directors). Apple plans to add more movies—and, presumably, more studios—over the next few

months. Jobs pointed out that the first video content on the iTunes Store was five TV shows from a single network in October 2005, and now iTunes offers 220 shows from 40 networks. He also promised that new releases will be available the same day they hit the shelves on DVD.

Although Jobs has long extolled the virtues of a single price point for music, the iTunes Store offers a multitiered pricing structure when it comes to movies: new films are \$12.99 if pre-ordered or purchased the first week after release and \$14.99 after that, whereas "Library" titles—basically, older movies—cost \$9.99. (Movie downloads are currently limited to the U.S. iTunes Store, although international support is promised for sometime in 2007.) Digital rights management restrictions are the same as for TV shows: you can view movies on up to five authorized computers and transfer them to an unlimited number of iPods, but you can't burn movies to disc.

Apple previously offered TV shows at 320-by-240-pixel resolution. Now, Apple offers movies at four times that resolution—640 by 480 pixels. (For wide-screen movies, the height is less to maintain the proper aspect ratio.) Movies are encoded in H.264 video format with Dolby Surround audio encoding. (At the same time, Apple has similarly increased the quality of TV show downloads, and is even going back and reencoding older shows as well. But you can't redownload the newer, higher-resolution versions of previously purchased shows without paying again.)

One of the obstacles to using movie-download services has always been bandwidth. You can download a 4-minute music track in less than a minute or a 22-minute TV show in several minutes even on a standard DSL or cable connection, but a 2-hour movie is a different game altogether. Jobs suggested that users with 5-Mbps connections could

download a movie from the iTunes Store in about 30 minutes. In our first attempt to grab a movie using the *Macworld* office's 10-Mbps connection—admittedly, at a very busy time just a few hours after the movie section of the iTunes Store opened—it took 1 hour and 10 minutes to download *Pirates of the Caribbean: The Curse of the Black Pearl*—a film that runs 2 hours and 22 minutes long and has a 1.64GB file size. But one of the benefits of iTunes 7 is that it lets you start watching a video file shortly after it begins to download, and iTunes' new Downloads view lets you rearrange the download queue and pause and resume downloads; so, for example, you can purchase movies now but download them when you're on a faster connection later (for our complete first look at iTunes 7, go to macworld.com/1735).

Expanding Your Options

Watching movies on your Mac or iPod is great, but most people prefer viewing video on their TV's bigger screen. Jobs took advantage of Apple's movie introduction to show off an upcoming product—a rare sneak peek for the company—code-named the iTV. Although it won't be available until the first quarter of 2007, Jobs showed the \$299 device (which looks very much like a half-height Mac mini), which will let you stream video, audio, and photos from your Mac to a television over an 802.11 wireless connection. But instead of making you “listen blind” as you have to do with an AirPort Express, the iTV provides a Front Row–like interface on your TV screen that you navigate using the now-ubiquitous Apple Remote.

The iTV will offer a number of ways to connect it to your home entertainment system: an HDMI (High-Definition Multimedia Interface) connection for video and digital audio; component video; optical digital audio; and analog RCA-type audio. It will also have an Ethernet port (which will presumably let you hardwire it to your network) and a USB 2.0 port (maybe for connecting your iPod).

Given Apple's famous secrecy, the fact that Jobs talked about the iTV well before its release was unusual. But in the context of the event, it was likely a prudent move. It showed that Apple is taking the TV and living room seriously, rather

than as an afterthought, at a time when more people are looking for ways to get their growing collection of digital content out of their computer and into the rest of their house. And it's likely that Apple's sneak peek was at least in part aimed at the movie studios, to convince

them that getting their movies into the iTunes Store would be a good idea. And that's an important step toward expanding the Store's content. □

DAN FRAKES is a senior editor at *Macworld* and the senior reviews editor at playlistmag.com.



New iPods, New Features

Although adding movies to the iTunes Store was the big news at Apple's special event, its updated iPod lineup gives people something to look forward to for the holiday season.

New full-size iPods come in two models: \$249 for a 30GB version with up to 14 hours of battery life for music playback or up to 3.5 hours of video playback; and \$349 for an 80GB version—the biggest capacity for an iPod yet—with up to 20 hours of battery life for music or 5.5 hours of video playback time. Each model comes in black or white.

A redesigned iPod nano comes in 2GB (\$149), 4GB (\$199), and 8GB (\$249) models. Apple has abandoned the high-gloss white and black cases of its first generation of iPod nanos in favor of an aluminum enclosure that comes in several colors—reminiscent of Apple's defunct iPod mini. The 2GB nano comes in silver only; the 4GB nano comes in silver, pink, green, and blue; and the 8GB nano is available only in black. Apple says that all nano models can get up to 24 hours of music playback or 5 hours of slide shows with music on one charge.

Both the iPod and the iPod nano include several hardware and software improvements as well. The iPod is 60 percent brighter than the previous model and the nano is 40 percent brighter than its predecessor, and both come with redesigned headphones. On the software side, both iPods add a long-requested feature, gap-free playback. This overcomes the short

silences inherent in compressed music to let the iPod properly play tracks—the movements of a Beethoven symphony or the songs in Pink Floyd's *Dark Side of the Moon*, for example—that segue seamlessly from one to another.

Apple also revamped the iPod's interface to include better searching. For instance, you can use the scroll wheel to input letters for an instant live search of all the content on that iPod, and a Quick Scroll feature displays a rectangular overlay of the letter you're currently scrolling through (similar to iPhoto's display of album names during scrolling).

Finally, the full-size iPod can also play more-advanced games, nine of which are currently for sale at the iTunes Store for \$5 apiece (including Bejeweled, Tetris, and Texas Hold 'Em).

Apple also announced a new iPod shuffle, which may be shipping by the time you read this. Half the size of its predecessor, the new iPod shuffle comes only in a 1GB model for \$79 and looks like a smaller version of the Apple Remote. The aluminum enclosure now sports a built-in clip to attach easily to clothing. The headphone jack also serves as the way to charge and sync the shuffle, using the new included USB 2.0 dock. Apple says that the new shuffle can get up to 12 hours of battery life when fully charged.—MATHEW HONAN



APPLE UPDATES CONSUMER DESKTOP PRODUCT LINES

New iMacs, Mac Minis Released

Intel's announcement a few months ago of the Core 2 Duo processor left little doubt that Apple would be using these new chips in future Macs—the only question was when. The answer has come in the form of a refreshed iMac product line, each of which uses the 64-bit Core 2 Duo processor code-named "Merom." At the same time, Apple created its biggest iMac ever, with a 24-inch wide-screen display, and has given buyers more choices in terms of prices and features.

The new iMac lineup includes four models: 1.83GHz (\$999) and 2.0GHz (\$1,199) 17-inch sizes, a 2.16GHz 20-inch (\$1,499) version, and the all-new 2.16GHz 24-inch model (\$1,999). Each iMac includes a built-in iSight camera, three USB 2.0 ports, two FireWire ports, Gigabit Ethernet, mini-DVI video output, analog audio input and output, digital audio input and output, built-in stereo speakers, and a built-in microphone.

The 24-inch iMac features a 1,920-by-1,200-pixel display that offers 30 percent more screen real estate than the 20-inch model. In addition to the new processor, the 24-inch iMac also includes 4MB of shared L2 cache (the Core Duo had 2MB), 1GB of 667MHz DDR2 SDRAM memory, a 250GB Serial ATA hard drive, Nvidia GeForce 7300 GT graphics with 128MB of GDDR3 memory, and an 8x SuperDrive. The 24-inch model has twice the speaker wattage of the other models, and Apple replaced one of the two FireWire 400 ports with a FireWire 800 port—a first for the iMac.

"We think this [24-inch iMac] is a product that both consumers and professionals are going to love," says David

Moody, Apple's vice president of worldwide Mac product marketing. "There is a market out there for consumers that aspire to do professional-level work, or for a pro [who] doesn't need the expandability of the Mac Pro."

In our initial tests, the 20-inch iMac improved by almost 17 percent over the previous high-end 20-inch iMac, and the 2GHz Core 2 Duo Pro 17-inch iMac scored 10 percent better than a Core Duo iMac at the same speed. For the latest news on the new iMacs, visit macworld.com/1726.

The 2GHz 17-inch and the 2.16GHz 20-inch iMacs share specs similar to the 24-inch model's, but with lower resolutions, ATI Radeon X1600 graphics with 128MB of GDDR3 memory, and a smaller hard drive (160GB) on the 17-inch iMac. The \$999 model is very similar to the \$899 iMac that Apple sells to educational institutions; each includes 512MB of RAM, 2MB of shared cache, a Combo drive, GMA 950 integrated graphics, and an Apple Remote (but no Bluetooth connectivity). The new model, however, has a Core 2 Duo processor instead of a Core Duo (both run at 1.83GHz) and a 160GB SATA hard drive instead of an 80GB hard drive.

In addition to releasing its updated iMac, Apple increased the speed of the Mac minis while keeping prices the same. The \$599 model now has a 1.66GHz Core Duo processor, up from a 1.5GHz Core Solo processor, and the \$799 gets a 1.83GHz Core Duo processor, up from a 1.66GHz Core Duo processor. All other specs remain the same.—JIM DALRYMPLE

Update Fixes MacBook Noise

MacBook users unhappy with their mooing laptops—caused by noisy cycling fans when the MacBook heats up—will be glad to hear that Apple has released the MacBook System Management Controller (SMC) Firmware Update for its line of MacBook (not MacBook Pro) laptop computers. The update is available via OS X's Software Update feature or from Apple's Web site. This firmware revision patches the MacBook's SMC, which controls various functions, including power and thermal management.

Apple Gets High Marks

Newly published data from the American Customer Satisfaction Index (www.theacsi.org) shows that Apple leads other personal computer manufacturers, beating out Dell, Hewlett-Packard, and others. On a 100-point scale, Apple merited a score of 83, a 2.5-percent year-over-year increase and a 7.8-percent increase from 1995, the first year the ACSI measured the PC industry. The annual ACSI is sponsored by the American Society for Quality (ASQ) and University of Michigan's M. Ross School of Business. It's derived from phone interviews with customers contacted by using digital-dial telephone samples; more than 70,000 consumers are identified and interviewed annually. Both Apple and Dell advanced this year—Dell moved up 5 percent to a score of 78, despite a slipping market share and lower earnings. In fact, overall customer satisfaction in the PC industry increased 4 percent, to 77—the highest score since the ACSI began tracking the industry.

New Boot Camp Beta Released

Apple has released the Boot Camp 1.1 beta, a new version of its software that lets Intel-based Macs run Microsoft Windows XP. The 202MB release adds support for the Mac Pro, iSight cameras, and built-in microphones. It includes partitioning presets, lets you install Windows XP on any internal disk, adds right-click emulation, and improves Apple keyboard support. Apple has also fixed a number of bugs present in the first release.





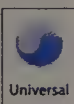
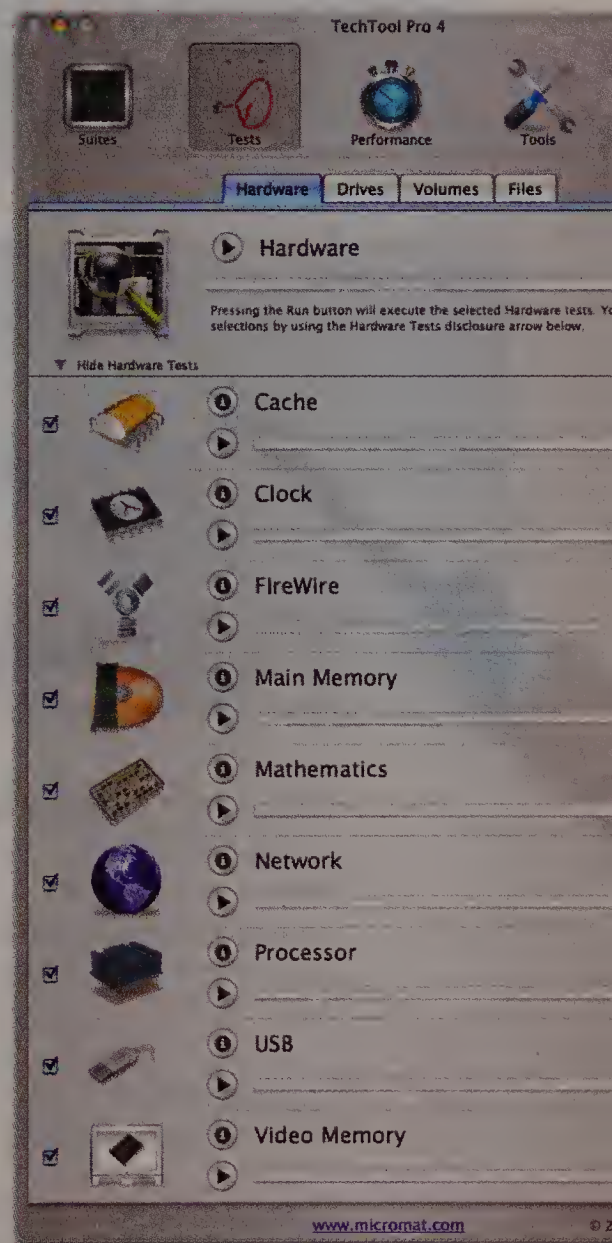
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HOW DOES APPLE'S PRO SYSTEM COMPARE TO A DELL ON PRICE?

Mac Pro versus Dell PC

There's a widely held perception—even among many Mac users—that Macs are more expensive than their Windows PC counterparts. In the PowerPC days, direct comparisons between the two were difficult, due in part to the differences between the chips that powered the respective systems. With Apple's switch to Intel, however, Macs and PCs have a lot more in common.

So when Phil Schiller, Apple's senior vice president of worldwide product marketing, introduced the Mac Pro during August's Worldwide Developers Conference keynote, and punctuated his demo by comparing a 2.66GHz Mac Pro's \$2,499 price tag to that of a comparable Dell, he was actually talking about a similar system. And by Schiller's math, a Dell Precision 690, configured similarly

to a Mac Pro, would run you \$3,448—nearly \$950 more than the Mac Pro.



That's an eye-catching figure, but is it accurate? To double-check Apple's math, I went on a virtual shopping spree to configure a Mac Pro and an as-comparable-

as-possible Dell to see how their prices measure up. (For our review and a comprehensive look at the Mac Pro, see "Inside the Mac Pro" on page 50.)

Making the Match

I visited Dell's Small Business store and built a Precision 690 1KW workstation with two 2.66GHz dual-core Intel Xeon processors so its specs matched those of Apple's dual-2.66GHz Mac Pro as closely as possible. I then made a few changes to the standard Mac Pro configuration at the online Apple Store to make it match the Dell.

My head-to-head comparison put the Mac Pro at \$3,298 and the Dell at \$3,945, or \$4,195 if you miss out on Dell's free display promotion (see "The Numbers Game"). The \$647 to \$897 price difference wasn't as big as the one that

PHOTOGRAPH OF MAC PRO BY PETER BELANGER

Your G5's Dream Date



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* SATA II: 300MB/second; Firewire: 80MB/s or 40MB/s; USB 2.0: 48MB/s
** Using four 750MB SATA drives (not included)

Schiller touted, but it's not exactly pocket change, either. In fact, the results in this particular comparison represent a clear reversal of Dell versus Mac pricing from just a few years ago.

What makes the Dell so much more expensive? A big chunk of the cost is the second processor: If you order the Precision 690 with a *single* 2.66GHz Xeon, the price drops by a whopping \$869 (which makes me think that either Apple is getting an amazing deal on Xeon processors or Dell is soaking its dual-processor customers). And to be fair to Dell, the 690 provides a few higher-end expansion options, such as the ability to use SAS hard drives and support for up to 64GB of RAM if you opt for a 64-bit Windows configuration. Finally, Dell's prices in general seem to include significant "discount padding" to accommodate the various secret coupons a savvy shopper may find on the Web. (That said, even if you find such a discount for the Precision 690, it's unlikely to eliminate the difference in price between these systems.)

How They Compare

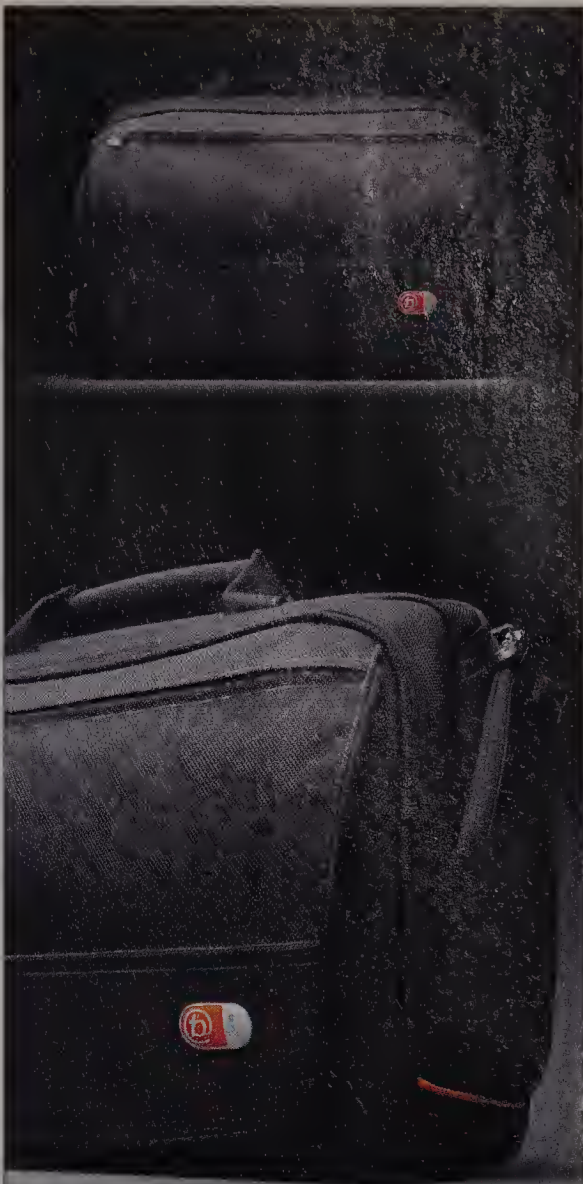
Despite my best efforts, I couldn't configure the machines *exactly* the same way. There were some hardware and software differences and, because Dell was offering a free display with the Precision 690 at the time I did my comparison, I included the price of that display in the Mac Pro's total and included prices both with and without the promotion for the Dell. (For all the gory details on how the two systems differ, see my full comparison at macworld.com/1225 and a follow-up article, based on reactions to the first, at macworld.com/1676.)

The Mac Pro is the first Mac in a long time that's less expensive than some of its Windows counterparts in the same market. Though people who build their own PCs probably won't be persuaded to buy a Mac, those shopping for a preconfigured computer are discovering that, except for the feature-lacking low end—where Apple chooses not to play—Macs are increasingly price-competitive. If the Mac Pro is any indication, the terms—and the tone—of the Mac versus Windows debate has fundamentally changed.—DAN FRAKES

THE NUMBERS GAME

	MAC PRO	DELL PRECISION 690
Processor	Dual-2.66GHz Xeon (4MB L2 cache, 1.3GHz bus)	Dual-2.66GHz Xeon (4MB L2 cache, 1.3GHz bus)
RAM	2GB 667MHz DDR2 FB-DIMM (\$300) ^A	2GB 667MHz DDR2 FB-DIMM (\$30) ^A
Hard Drive	250GB 7,200 RPM SATA with 8MB cache	250GB 7,200 RPM SATA with 8MB cache (\$90) ^A
Hard-Drive Expansion	Four SATA drive bays	Four SATA drive bays
Optical Drive	32x/16x DVD±RW/CD-RW	48x/16x DVD±RW (\$94) ^A
Optical-Drive Expansion	Two Ultra ATA/100 slots	Two Ultra ATA/100 slots
Graphics Card	Nvidia GeForce 7300 GT (256MB, dual- and single-link)	ATI FireGL V3400 (128MB, dual-link) (\$75) ^A
PCI Express	One 16x graphics slot, three configurable slots (8x, 4x, or 1x)	One 16x graphics slot, two nonconfigurable slots (4x, 1x)
PCI	None	Three 32-bit, 33MHz slots
Ethernet	Dual Gigabit	Dual Gigabit (\$49) ^A
FireWire	Two FireWire 800, Two FireWire 400	Two FireWire 400
USB Ports	Six USB 2.0	Eight USB 2.0
Audio In	Optical digital, analog	Two analog
Audio Out	Optical digital, two analog	Two analog
Speaker	Built-in	Built-in
Keyboard	Apple Pro	Dell QuietKey
Mouse	Mighty Mouse (optical)	Dell 2-Button Optical (\$14) ^A
Other Ports	Internal AirPort slot	Two PS/2, one parallel, two serial
Display	Dell 19-inch UltraSharp 1907FP (\$250) ^A	Dell 19-inch UltraSharp 1907FP (free or \$250) ^A
Warranty	Three-year AppleCare (\$249) ^A	Three-year On-Site Economy Plan
Software	Mac OS X 10.4 (Tiger), iLife '06, Comic Life, Omni Outliner	Windows XP (32- or 64-bit version)
Price	\$3,298	\$4,195; with the free monitor promotion, \$3,945

^ACustom option (additional cost included in total).



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\$100 MILLION PAYMENT ENDS ALL PENDING LITIGATION

Apple Settles Creative Lawsuits

Over the past few years, Apple and Creative Technology have filed a volley of lawsuits against each other over the iPod. Creative alleged that Apple violated what Creative calls its "Zen Patent," which describes the way musical data is displayed on a digital music player. Apple responded with its own suit, alleging that Creative had infringed on Apple's patents. Putting an end to their legal differences, Apple recently announced that it would pay Creative \$100 million to settle all claims. At the same time, Apple and Creative announced that Creative had joined Apple's "Made for iPod" program and will begin releasing iPod accessory products shortly.

In a statement announcing the settlement, Apple CEO Steve Jobs said Creative was "very fortunate to have been granted this early patent" and added, "This settlement resolves all of our differences with Creative, including the five lawsuits currently pending between the companies, and removes the uncertainty and distraction of prolonged litigation."

As someone who proclaimed that Apple would pay dollar none as the result of such a frivolous action against the iPod interface, let me enjoy a healthy portion of crow and move on to what I see as the reasons behind the deal.

1. It's cheaper to settle: Apple's dipped into the legal well a time or two and understands that years of protracted litigation don't come cheap. Regardless of who cashes the check, \$100 million is \$100 million.

2. Creative could use the cash: Creative's most recent earnings were anything but impressive, with a net loss for the previous fiscal year of \$8.6 million and 10 cents a share. Look at the actions the company has taken to return to profitability—cutting operating expenses and reducing inventory—and how its digital players are faring in comparison to the iPod, and you can understand why a seven-figure check is tempting. A single call from Singapore to Cupertino along the lines of "We're betting that our stock price would shoot up 25 percent if you made some token gesture to make this all go away" would have been enough.

3. Apple is buying protection: Steve Jobs terms the granting of this early patent "very fortunate" for Creative. Right he is. Glance at just about any other portable music player on the market and you'll find that it uses the same "automatic hierarchical categorization of music by metadata" system that Creative claims as its own. Part of the agreement between Apple and Creative stipulates that Apple can recoup a portion of its payment if Creative licenses the patent to other companies. If I were Steve Jobs, I might sidle up to Creative's CEO Sim Wong Hoo, whip out a few dozen music players, and remark, "Say, Hoo, notice anything familiar about these doodads? We're completely behind you on this thing. You know where to send the check, right?" Had

Apple taken this one to the finish line and failed to prevail, what are the chances it would have gotten a slice of the pie when Creative went after others?

4. Apple trusts that Creative hasn't read the terms of its Made for iPod program:

Apple's Made for iPod program allows third parties to slap a special Apple logo on their gear while paying Apple a percentage of the gear's wholesale price. It's possible that Creative negotiated its way around the fee, but if not, getting that quarterly check from a company with Creative's marketing power could be a good thing.

5. Creative's patent claim really was the goods and Apple understood that it had to pay up: Little fun as it may be to take things at face value, maybe Creative was right all along. Sure, you and I look at a hierarchical categorization system along the lines of the Zen and iPod and think, "What? My computer has been doing this for years." But we're not patent attorneys—or at least I'm not a patent attorney. In that world where an entity could claim, as late as December 2005, that it invented "a user interface for enabling a user to switch between displaying a file and displaying a feed related to the file" (in short, the ability to look at an RSS feed within your browser, à la Safari), anything is possible.—CHRISTOPHER BREEN



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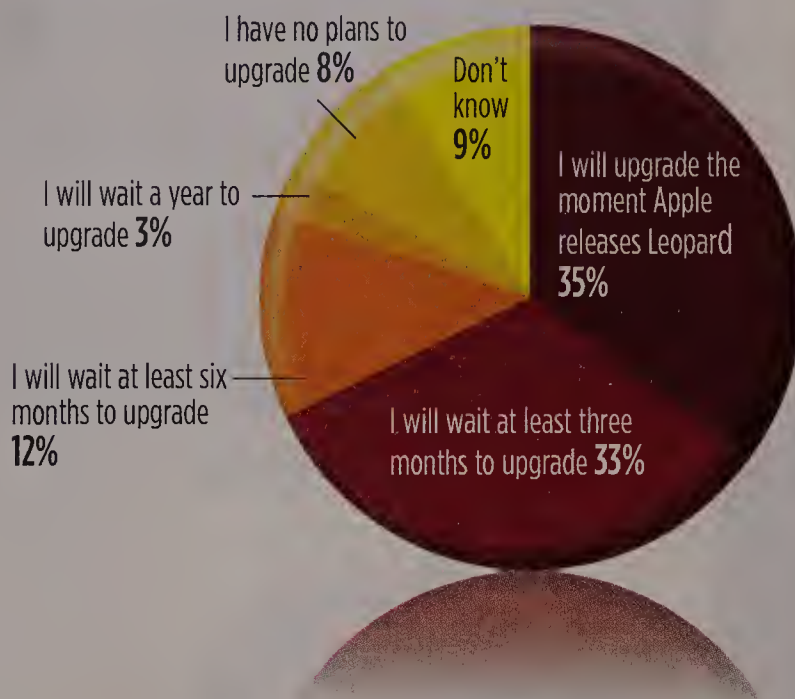


THE READERS SPEAK

Leopard Upgrade Plans

The next major version of OS X may not be coming out until spring 2007, but the preview of OS X 10.5—also known as Leopard—at August's Worldwide Developers Conference made a big splash with the public. To find out how excited people are about Leopard, we asked 765 *Macworld* readers when they planned to switch to the new OS (to see the complete results of our survey, including which features readers found most intriguing and their overall reaction to Apple's preview of Leopard, go to macworld.com/1679).—JONATHAN SEFF

How Long until Leopard?

MULTIMEDIA
BEAT

TuneFlex for iPod, from Griffin Technology (www.griffintechology.com): Flexible car dock and charger for 4G and newer iPods features a line-out connection and includes a cassette adapter (\$50).

PowerBlock Travel, from Griffin Technology (www.griffintechology.com): International USB charger and AC adapter pack let you charge an iPod overseas (\$35).

Pro Tools HD 7.2, from Digidesign (www.digidesign.com): Update to audio mastering software adds support for H.264 audio and video export (download, \$175).

STORAGE
BEAT

Forensic Notebook DriveDock v4, from WiebeTech (www.wiebetech.com): Dock for 2.5-inch laptop drives lets forensic investigators download or image contents over USB or FireWire 800 (\$400).

SilverSATA IV, from WiebeTech (www.wiebetech.com): Four-bay Serial ATA external hard drive chassis supports up to 3GB of storage (\$450; with drives, \$982 to \$3,110).



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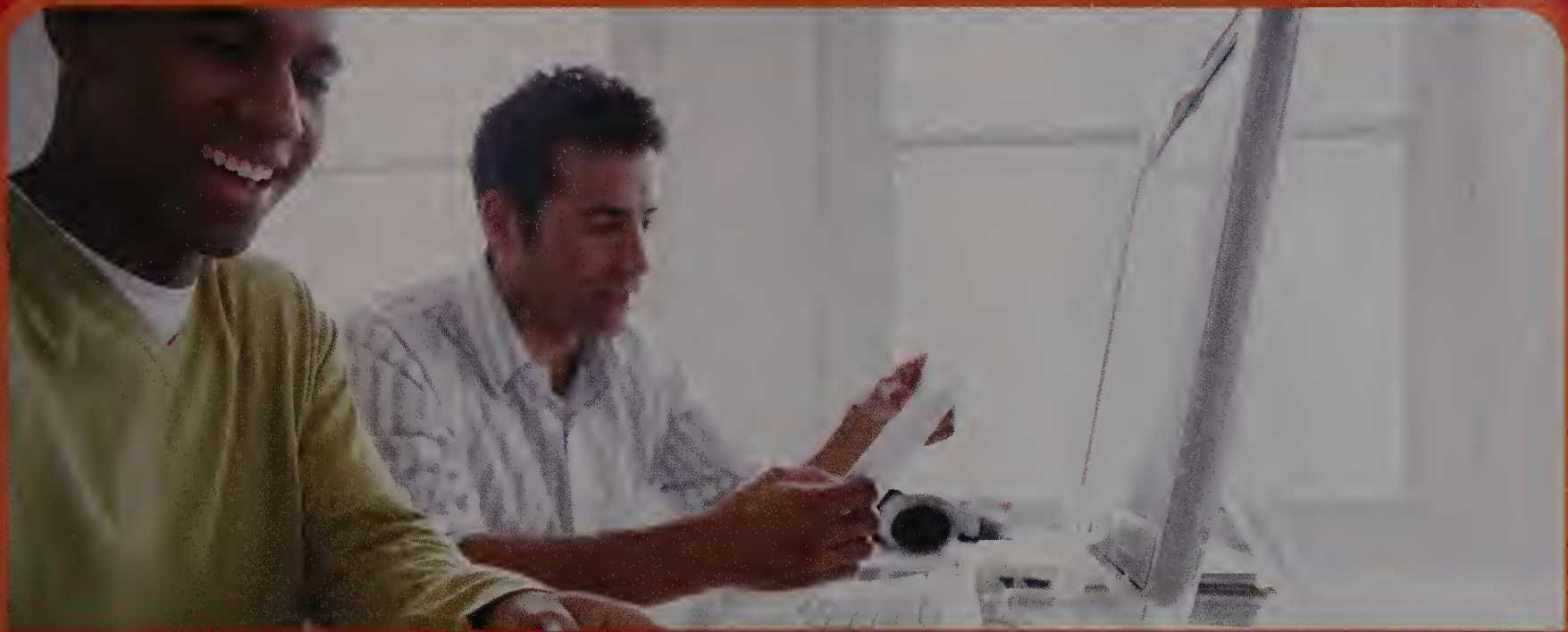
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MACWORLD SEEKS READER INPUT

Editors' Choice Awards

Every year, *Macworld* hands out its coveted Editors' Choice awards to the best, most significant Mac products released over the previous 12 months—and this year is no different. But we also want to hear from you. Which products—hardware and software—released between November 1, 2005, and November 1, 2006, would *you* nominate for an Eddy award? Let us know, and we'll not only add your nominees to our list of Eddy contenders, we'll also put your most popular picks to an online vote and hand out Readers' Choice awards to the winners. So send your suggestions to eddyawards@macworld.com, and keep an eye on Macworld.com for more details as the contest continues. The winners of the Editors' and Readers' Choice awards will appear in our February 2007 issue.



GAME NEWS



Age of Empires III on the Way

By the time you read this, Destineer's MacSoft studio (www.macsoftgames.com) should have Age of Empires III on store shelves. What makes this remarkable news is that the PC version used a physics engine called Havok that isn't available on the Mac—MacSoft's programmers pulled out that code and replaced it with Ageia's Mac-compatible PhysX engine. The next installment in MacSoft's hugely popular Age of Empire series puts you in charge of a European world power exploring the New World. You must raise an army, explore, colonize and conquer, form strategic alliances, and ally yourself with the local inhabitants.

Speedier OpenGL Coming

OpenGL—the technology that powers 3-D games on the Mac—is getting a big shot in the arm, thanks to two new technologies: Multithreaded OpenGL and LLVM (Low Level Virtual Machine) optimization. Combined,

they've been able to double frame rates in some games—answering the plaintive pleas of Mac gamers who have long sought frame rates that are competitive with those of their PC counterparts. Currently, multithreaded OpenGL is something you can only find on Mac Pros—and even then, it's "opt-in" technology that game developers have to support in their code. And the LLVM architecture isn't something that will appear on the Mac before Leopard ships.



Game Surround Sound Arrives

Even if your Mac has a digital audio output and you've connected it to a surround-sound system, you may have noticed it doesn't do surround sound for games. That's because the Mac's built-in sound hardware doesn't decode OpenAL, the positional audio software certain Mac games use. Griffin Technology fixes that problem with its \$100 FireWave (www.griffin-technology.com), a FireWire-connected, surround-sound-capable box. You can hook it up to an amplified 5.1 speaker system or to a home entertainment system amplifier that has discrete inputs. For a list of OpenAL-supported games, check out the OpenAL Web site (www.openal.org).—PETER COHEN



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Thinking Big: SATA Hard Drives

New Generation of RAID Drives Offers High Performance at Reduced Cost

BY ANTON LINECKER

It wasn't long ago that buying a terabyte (TB) of fast storage meant shelling out several thousand dollars. Now, with Serial ATA (SATA) technology bringing the price down and performance up, owning a terabyte of RAID storage can cost as little as \$800.

But what exactly is SATA (Serial Advanced Technology Attachment), and what does it bring to the table that other technologies like FireWire and USB don't? In answering those questions, we look at four two-bay 1TB SATA RAIDs (Redundant Array of Independent Disks) and the technology behind them.

Serial ATA Basics

Serial ATA is a new transfer protocol for hard drives that has some distinct advantages over older IDE (Integrated Drive Electronics) hard-drive technology (sometimes referred to as Parallel ATA or just ATA). The first incarnation of SATA, SATA I, was intended predominantly for internal storage. SATA II added features including hot swapping and doubling both the data throughput and the maximum cable length. Most external SATA drives you'll find on the market today use SATA II technology.



G-Technology G-SATA

One big advantage SATA drives have over IDE drives: Installing them is a snap. Each SATA drive gets its own dedicated bus and cable. Just plug the flat, seven-pin, L-shaped data cable into your drive. You're connected.

But to take full advantage of SATA drives externally, you'll need a Mac with expansion options, like the MacBook Pro or the Mac Pro. And you'll need a host adapter card, since Macs don't have a dedicated SATA port.

SATA II versus FireWire and USB 2.0

By design, SATA technology revolves solely around hard-drive storage. In contrast, Fire-

Wire and USB have dozens of other uses, such as controlling DV camcorders, reading flash cards, networking, and even processing compressed high definition video. Another difference is that external FireWire and USB drive enclosures use a processor to translate data into a form the drive can use. This step slows the transfer of data. As a result, SATA, with its direct connection, performs significantly faster than USB 2.0, FireWire 400, and even FireWire 800. With SATA, you get the drive's full data throughput.

The one disadvantage SATA has compared to FireWire and USB is its supported

SATA RAID DRIVES COMPARED

COMPANY	PRODUCT	RATING	PRICE	CONTACT	CACHE	PROS	CONS
Granite Digital	SATAVue Hot-Swap	★★★★	\$960	www.granitedigital.com	16MB	Very fast read and write speeds; hot-swappable drives; redundant power; host-card power available.	Drive enclosure lacks design flair.
G-Technology	G-SATA	★★★★	\$999	www.g-technology.com	16MB	Fast read and write speeds; quiet; stylish.	No SATA card bundles available; expensive.
LaCie	Two Big	★★★★	\$899 ^A	www.lacie.com	16MB	Hardware RAID 0, 1, concatenate, and JBOD; hot-swappable drives; bundled host adapter.	Changing RAID formats led to hiccups; included host adapter won't recognize other SATA drives; few non-LaCie cards can mount the drive; enclosure can become very hot.
WiebeTech	SilverSATA II SR TOP Product	★★★★½	\$1,052	www.wiebetech.com	8MB	Hardware RAID 0, 1; integrated power supply; hot-swappable drives; drive copying; stylish; status display.	Noticeable fan noise; expensive.

^APrice includes host adapter.

REVIEWS YOU CAN TRUST Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.

cable length. The maximum length for a SATA I cable is just over three feet, and SATA II managed to only double that length. So your SATA enclosures can never be very far away from your computer. That makes fan noise an important factor for purchasers of SATA drives.

SATA Host Adapters

If there's a weak link in the SATA world, it would have to be incompatibility between some SATA host adapters (the cards) and SATA enclosures (the housings that hold the drives). In our testing, we used eight PCI-X SATA host cards for Power Mac G5s, as well as FirmTek's ExpressCard two-port SATA adapter, the SeriTek/2SM2-E, for use in a MacBook Pro. Only the ExpressCard adapter mounted all of the 1TB RAIDs we tested. Some SATA cards, particularly bundled cards like the one from LaCie, mounted only the drive they came with. So we had to pull out PCI-X cards and install different cards based on the drive we were using—not convenient.

Part of the problem behind this is that the SATA II specification has many features that manufacturers are selectively choosing to support—or not. Some cards support hot swapping; others don't. Some cards allow users to boot from their SATA drives; others don't. And the list goes on.

This lack of conformity doesn't seem like a huge issue on the surface, because most people are merely concerned about writing to and from their own drives. But it can be a problem when you bring your drive to a print shop or video facility, only to find that its SATA card is incompatible with your drive.

Since SATA is still a young technology, this situation will likely improve soon. Manufacturers such as Sonnet regularly release firmware updates for their SATA cards to expand compatibility.

What RAID, Concatenate, and JBOD Mean to You

In this review, we compare four SATA RAIDs that have two 500GB hard drives nestled in their enclosures. What are the advantages of two drives versus one?

Flexibility is a big one. You can format your two drives in a number of ways to suit your needs—including RAID, concatenate (linked together), and JBOD (Just a Bunch of Disks).

For greater speed, you can combine the two drives into one RAID 0 volume that splits the incoming data and writes half the

Macworld	Average Read Speed	Average Write Speed	Copy 1GB File	Duplicate 1GB File	Photoshop Low-Memory Test
Granite Digital SATAVue Hot-Swap	125	136	0:30	0:35	0:57
G-Technology G-SATA	93	160	0:31	0:39	1:06
LaCie Two Big	95	143	0:32	0:37	1:04
WiebeTech SilverSATA II SR	101	104	0:30	0:37	1:02
	>Better	>Better	<Better	<Better	<Better

BEST RESULTS IN **BOLD**. All drives in this table have a rotation speed of 7,200 rpm.

All scores are in minutes:seconds, except for the average read and write scores, which are in MBps. All tests used RAID 0 connected via PCI-X cards installed in a dual-2.5GHz Power Mac G5 with Mac OS X 10.3.9 and 512MB of RAM. We copied a folder containing 1GB of data from our Mac's hard drive to the external hard drive to test the drive's write speed. We then duplicated that file on the external drive to test both read and write speeds. We also used the drive as a scratch disk when running our low-memory Adobe Photoshop CS Suite test. This test is a set of four tasks performed on a 150MB file, with Photoshop's memory set to 50 percent. For the average read and write scores, we used a 50MB custom test based on QuickBench and ZoneBench tests.—MACWORLD LAB TESTING BY JAMES GALBRAITH, JERRY JUNG, AND ANTON LINECKER

information to one drive and the rest to the other; this setup is called *striping*. Although a two-drive RAID 0 volume is nearly twice as fast as a single drive, that speed can come at a cost: if you lose one drive to mechanical failure, you'll lose all your data. For most of the speed tests in this review, we formatted the drives as RAID 0 volumes.

The flip side of RAID 0 is RAID 1 (called *mirroring*). This scheme simultaneously copies all incoming data to both drives, duplicating everything exactly, so all the data is protected should one drive fail. The downside to RAID 1 is that the volume is no faster than a single drive, and you'll be able to use only half the total drive space in the enclosure (since RAID 1 duplicates the data on both drives).

Concatenate formatting stitches the two drives together to make them appear on your Mac's desktop as one large drive. You can even join drives of different sizes. This setup doesn't offer any data overlap or speed increase, however.

JBOD simply makes the devices available to the computer as two separate 500GB drives.

Testing the Drives

Our 1TB test group consisted of G-Technology's G-SATA, LaCie's Two Big, WiebeTech's SilverSATA II SR, and Granite Digital's SATAVue Hot-Swap.

In general, all the SATA drives we tested performed similarly. With such minimal differences in performance, other factors—such

as appearance, noise level, and price—may be important to you if you're in the market for a SATA drive.

G-Technology G-SATA The G-SATA follows in the footsteps of G-Technology's G-RAID 800 (★★★★½; macworld.com/0351). The stylish housing remains unchanged.

The G-SATA requires that you use Apple's Disk Utility to format the drives. In our testing, when formatted as a RAID 0 volume, the G-SATA had an average read speed of 93 MBps and the best write-speed average of the group: an impressive 160 MBps when empty, using a Sonnet Tempo 4+4 PCI-X card (see the benchmark chart). At 90 percent capacity, the G-SATA's read and write speeds fell to 47 MBps and 79 MBps, respectively. This minimum speed

continues



LaCie Two Big



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REVIEWS

ensures that users can edit even 10-bit uncompressed standard definition video without problems.

To give you an idea of how this stacks up to FireWire speeds, the G-RAID 800 turned in read speeds of 76.5 MBps and write speeds of 54 MBps in our review of that drive.

Despite its impressive write speeds, the G-SATA was edged out by the Granite Digital SATAVue Hot-Swap in our real-world tests: copying a 1GB file to the drive; duplicating a 1GB file; and running a memory-intensive script in Photoshop, using the drive as a scratch disk.

One noteworthy shortcoming of the G-SATA is that it is the only RAID in this group without hot-swappable drives, so you can't easily replace drives.

In standard operation, the G-SATA's fan was relatively quiet compared with those of the other RAIDs we tested, and the enclosure always remained cool.

The G-Technology G-SATA is a good, if expensive, workhorse with fast write speeds and quiet operation. Currently, G-Technology is neither bundling the G-SATA with SATA host adapters nor selling SATA cards (though the company plans to in the future). In the meantime, anyone interested in the G-SATA should look to Sonnet or FirmTek for compatible host cards.

LaCie Two Big LaCie offers its Two Big packaged with either a PCI-X or a PCIe SATA host adapter. This is a good thing, since the Two Big did not mount with any of the other PCI-X host adapters we had on hand. (The FirmTek ExpressCard adapter did mount the drive, but the drive suffered a

slight performance hit; and Sonnet supports the Two Big on some host cards with its latest firmware.) A LaCie spokesperson said that its host adapters were specifically configured to work with the Two Big and LaCie's larger S2S SATA RAID.

The bundled card has four open ports, only one of which the Two Big unit takes up. Using just one cable doesn't diminish the overall speed, since SATA II tops out at 300 MBps. In our speed tests, the Two Big delivered average read speeds of 95 MBps and write speeds of 143 MBps when formatted as RAID 0. (Using the FirmTek ExpressCard reduced the write speed to 85 MBps.)

The Two Big drive sports a hardware RAID chip controlled via a small dial on the back of the unit. With the turn of a screwdriver, you can choose between RAID 0 (or as LaCie calls it, Fast), RAID 1 (Safe), concatenate (Big), or JBOD. In our testing, when we changed RAID schemes, particularly from RAID 1 to RAID 0, the Two Big had occasional hiccups, where the Mac didn't recognize the full capacity—as though one drive was offline. Powering the unit off and on seemed to alleviate the problem.

The front of the Two Big comes off easily to allow access to the swappable drives. LaCie sells bundles with drive spares—for expansion or as a backup.

The Two Big enclosure itself runs slightly louder than the G-SATA and can get very hot to the touch.

The LaCie Two Big, bundled with a host adapter, is an economical hardware RAID that performs solidly. The only drawback to

continues

Higher- and Lower-End SATA Options

If you need more storage options beyond a two-bay 1TB system, there's a system out there for you. While they might seem like overkill for personal use, bigger multiple-bay SATA drives are available. For videographers or other professionals who require the speed, these can be very handy. The five-bay WiebeTech **SilverSATA V** (★★★★½; macworld.com/1620; shown here on the top), for example, can reach up to an eye-popping 173-MBps write speed and 206-MBps read speed.

If your needs are much simpler, but you still want to take advantage of SATA speed, you can buy one-bay SATA drives. If you're looking for a drive with an abundance of connection options, G-Tech's **G-Drive Q** (★★★★; macworld.com/1622; shown here on the bottom) has just about any type of port you might need: FireWire 400, FireWire 800, USB 2.0, and eSATA. It turned in respectable speed-test numbers, delivering an average read speed of 69 MBps and an average write speed of 55 MBps.



SILVERSA V PHOTOGRAPH BY PETER BELANGER



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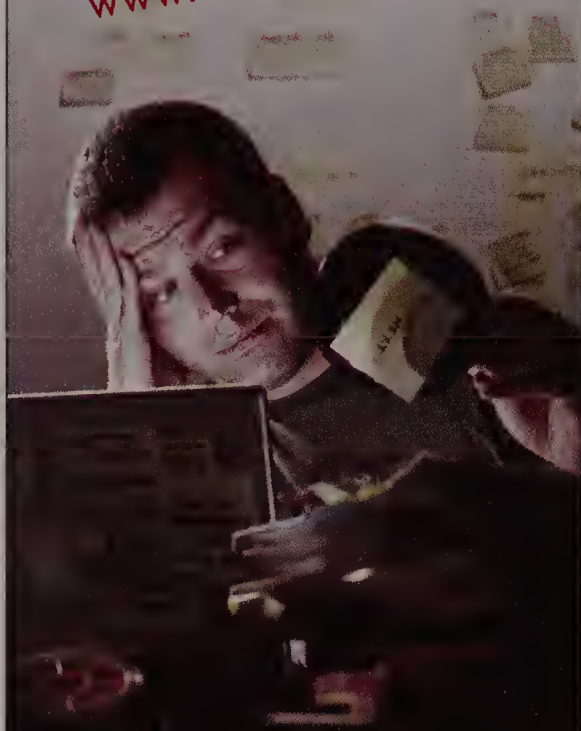


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WiebeTech SilverSATA II SR

the bundle is that the included PCI-X card doesn't play well with other SATA drives.

WiebeTech SilverSATA II SR The SilverSATA II SR is a very slick-looking RAID with a digital status window. Like the Two Big, it has a hardware RAID chip inside its enclosure; however, it's only capable of RAID 0 and RAID 1 formatting.

The SilverSATA II sports two connections on the back, one eSATA port and one USB 2.0. The USB port is a welcome addition as it ensures that you can mount the SilverSATA II on computers lacking SATA connectors.

While the SilverSATA II wasn't the fastest RAID according to our QuickBench tests, it did perform very well in a 1GB file-copy and -duplication test and in our Photoshop test.

The SilverSATA II incorporates the power supply in the enclosure. External power bricks are bulky, so that's a plus.

When set to RAID 1 (mirroring) mode, the SilverSATA II can quickly copy hard drives. This is useful if you're an IT manager and want to clone a boot drive, for example. If you install a drive alone in the enclosure and turn the unit on, it will consider that drive the master copy drive. If you then add a second drive, the SilverSATA II will automatically copy the data from the master to the new drive.

The SilverSATA II is not compatible with host adapters that use the Intel 31244 PCI-X-to-SATA controller chip. We had no issues using a Sonnet Tempo 4+4 card, apart from not being able to boot from the drive.

While WiebeTech doesn't bundle a host card with the SilverSATA II, it does sell a PCI-X-compatible card, the TCS1-1, for only \$60. That brings the total cost for the SilverSATA II 1TB and the host card to just under \$1,102.

WiebeTech's SilverSATA II SR offers consistent performance and a stylistic edge. Its handy display screen shows the drive status and other useful information. The only knocks against the drive are the fan noise—which is noticeably louder than that of the competition—and price. If you're looking for a quiet RAID, you should look elsewhere.

Granite Digital SATAVue Hot-Swap The Granite Digital SATAVue Hot-Swap has an industrial look. Constructed of heavy aluminum, it feels practically tanklike. However, underneath the heavy shell hides a hare, not a tortoise.

Like the G-SATA, the SATAVue has two SATA connections on the back, each one going to its own drive. You create a software RAID via Apple's Disk Utility.

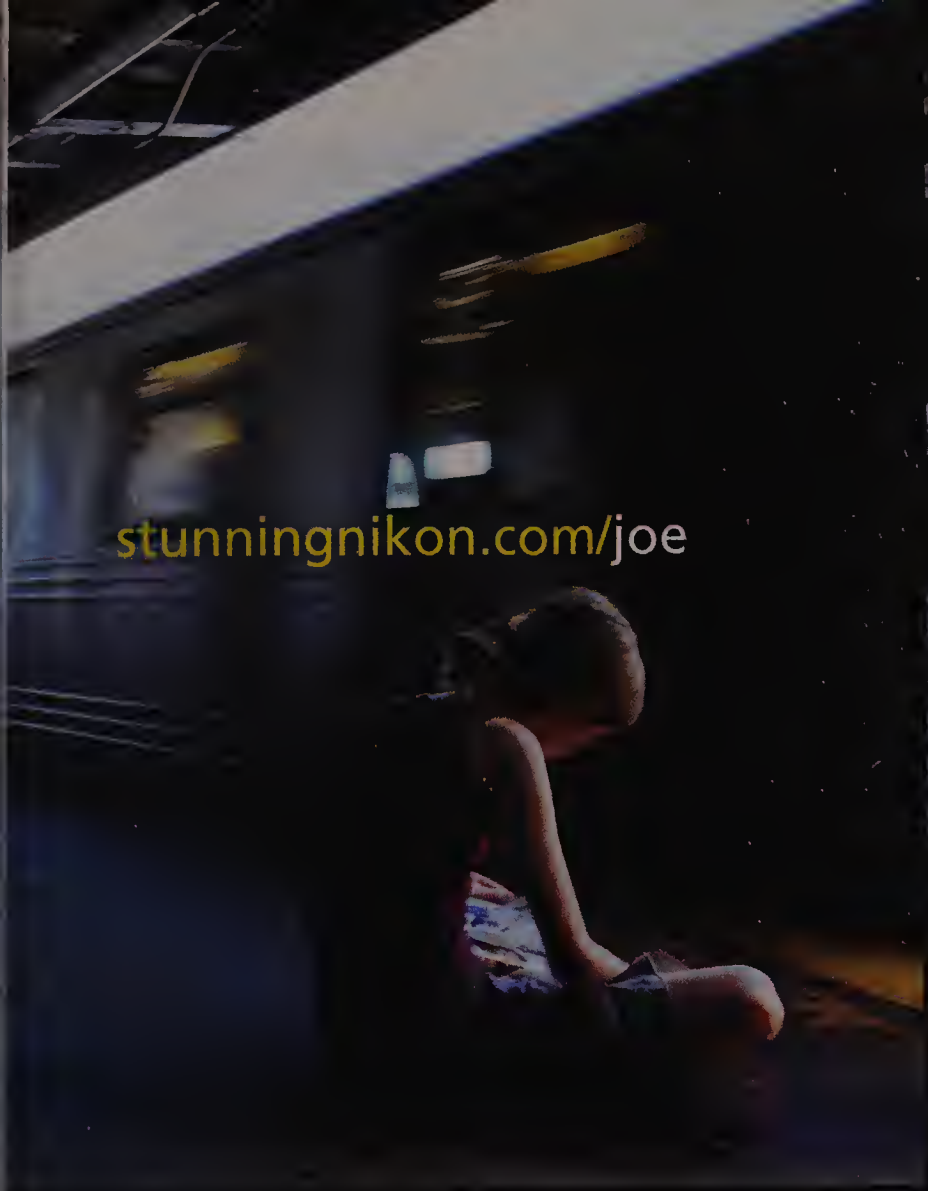
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Build Your Own SATA RAID

How difficult is it to build a SATA RAID? SATA's greatest strength is its simplicity. It's as close to plug-and-play as you can get. Using a FirmTek SeriTek-2EN2 two-bay enclosure with two 500GB SATA drives, it took me less than six minutes to build a RAID. The only thing I needed to do was mount a drive into each drive tray with four screws, and then slide each tray into the enclosure—no wiring required. There is no reason to fear building these RAID's from scratch.

The other incentive is price. You can buy an empty FirmTek enclosure for \$199 (\$289 if you add a host adapter), and then add bare compatible drives for approximately \$200 for each 500GB SATA Hitachi drive. For just less than \$600, you can get a 1TB RAID that performs as well as the RAID's reviewed in this article. (Our FirmTek enclosure, with two Western Digital drives, tested at 119 MBps [read] and 131 MBps [write].)

Two of the 1TB RAID products reviewed here—the models offered by WiebeTech and Granite Digital—are also offered in build-it-yourself configurations, with empty drive trays. You can populate these empty enclosures as you see fit, and possibly save some money (although the WiebeTech and Granite Digital warranties won't cover drive failure in this case).



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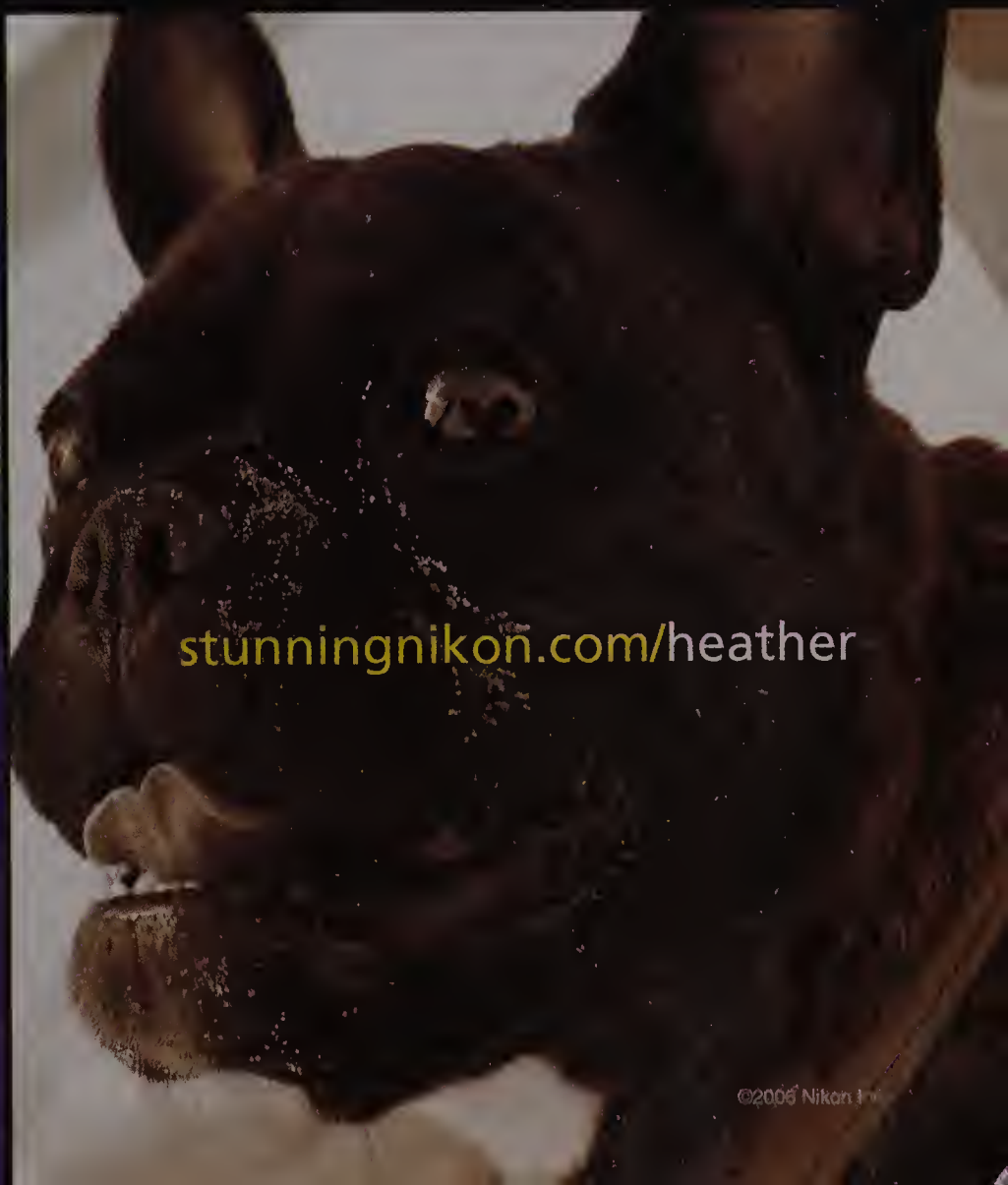
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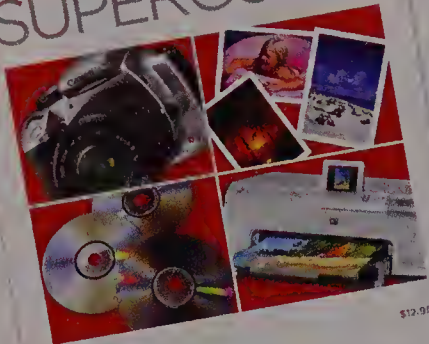
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Granite Digital
SATAVue Hot-Swap

Formatted as RAID 0, the SATAVue performed very well in our QuickBench tests, scoring the fastest average read speed of the group. It also leads the pack on file duplication and Photoshop memory tests.

Granite Digital has some interesting options when it comes to powering the SATAVue. First, it offers redundant power supplies for the RAID (if one power supply fails, your RAID can still operate). The company also offers a PCIe SATA host adapter that can pass electrical power to the RAID, so you don't even need external power supplies.

The Granite Digital SATAVue Hot-Swap is a heavy-duty, speedy RAID. At \$960, the 1TB version is a little pricey considering that you can buy the bare enclosure for only \$160 and then fill it with drives. Do-it-yourself types should consider doing it themselves (see "Build Your Own SATA RAID").

Macworld's Buying Advice

The G-Technology G-SATA had the fastest average write speed of the drives we tested, as well as an impressive average read speed. An added bonus is its ability to operate quietly. In terms of price, it ranks second highest. The fact that it does not currently include a host card makes it an even more expensive option.

The LaCie Two Big, which comes bundled with a host adapter, is economical and provides solid performance. If you're looking for a hot-swappable option with an attractive

design, this may be the SATA drive for you. However, the included PCI-X card doesn't work well with other SATA drives.

WiebeTech's SilverSATA II was a good performer but is the most expensive of the lot. It also incorporates its power supply in the enclosure and has a nifty drive-copying feature. But of the drives we tested, this one ran the loudest.

While the Granite Digital SATAVue Hot-Swap may not win any design awards and is not the least expensive option, it performed very well in our tests. It had the fastest average read speed of the two-bay drives we tested, and it performed best in our real-world copying and Photoshop tests.

This contest was practically a photo finish. The WiebeTech SilverSATA II SR had a slight edge overall, though it also came in as the most expensive. Thrifty shoppers will gravitate toward the LaCie Two Big, and speedsters will lean toward the G-SATA and the SATAVue Hot-Swap. There isn't a dud in the group.

When buying, take into account whether the drive includes host card adapters. If not, follow the recommendations of the company that sells the drive and choose a host card that you're certain will work with your drive. Also, consider whether the option to swap out drives is important to you. □

ANTON LINECKER is a writer and video technical advisor living in Los Angeles.

SATA over a USB Connection

If you own an iBook, a MacBook, or an iMac, you won't be able to connect it directly to any SATA RAID. But that doesn't mean you can't use them in a pinch. Addonics makes a \$30 USB 2.0-to-eSATA adapter that will bridge the SATA divide for any Mac. In our tests, the drives peaked at a transfer rate of 17 MBps (read) and 15 MBps (write), but that's definitely better than not having a connection at all.



HARD-DRIVE PHOTOGRAPH BY PETER BELANGER



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FileMaker Pro 8.5 Gets Web-Savvy

Database App Goes Universal, Gains Web Viewer

BY WILLIAM PORTER

FileMaker Pro (FMP) 8.5 is one of the marquee Mac applications to be released in Universal format. It has significant advantages that aren't going to break your old databases or send you back to school. The program comes in a Pro version (primarily for database users) and a Pro Advanced version (targeted at developers). I looked at the Pro version for this review.

Faster, Faster

FileMaker says that version 8.5 is up to two times faster than FMP 8 on a PowerPC Mac. Based on my real-world tests, FMP 8.5 did even better than that. In one test, a looping script created 100,000 records. With each loop iteration, FMP placed a random value in a field and performed a couple of simple math operations on that value. FMP 8.5, running on a 2.16GHz MacBook Pro, ran this script in about three minutes—roughly five times faster than FMP 8 on the same machine. FMP 8.5 is also faster on older hardware. Not every test showed such a dramatic difference, but if speed matters to you, upgrade to version 8.5.

No Browser Necessary

FMP's major new feature is a layout object called the Web Viewer. The idea is to show Web content in a defined space within a layout. For example, the Web Viewer can show a map of an address built from the values in the street, city, state, and zip code fields in the record you're browsing. When you move to another record, the map changes.

Users have long been able to access FMP's Open URL script to send a URL from a field to a computer's default Web browser. But previously, if you wanted to open a dynamic Web page, you had to determine the coding of that site and then write your own calculation in FMP to generate the correct URL. The Web Viewer setup has easy access to more than 20 Web sites (including Google Maps and FedEx

RATING: ★★★★★

PROS: Universal format provides major speed increase; Web Viewer gives you dynamic Web content inside FMP layout.

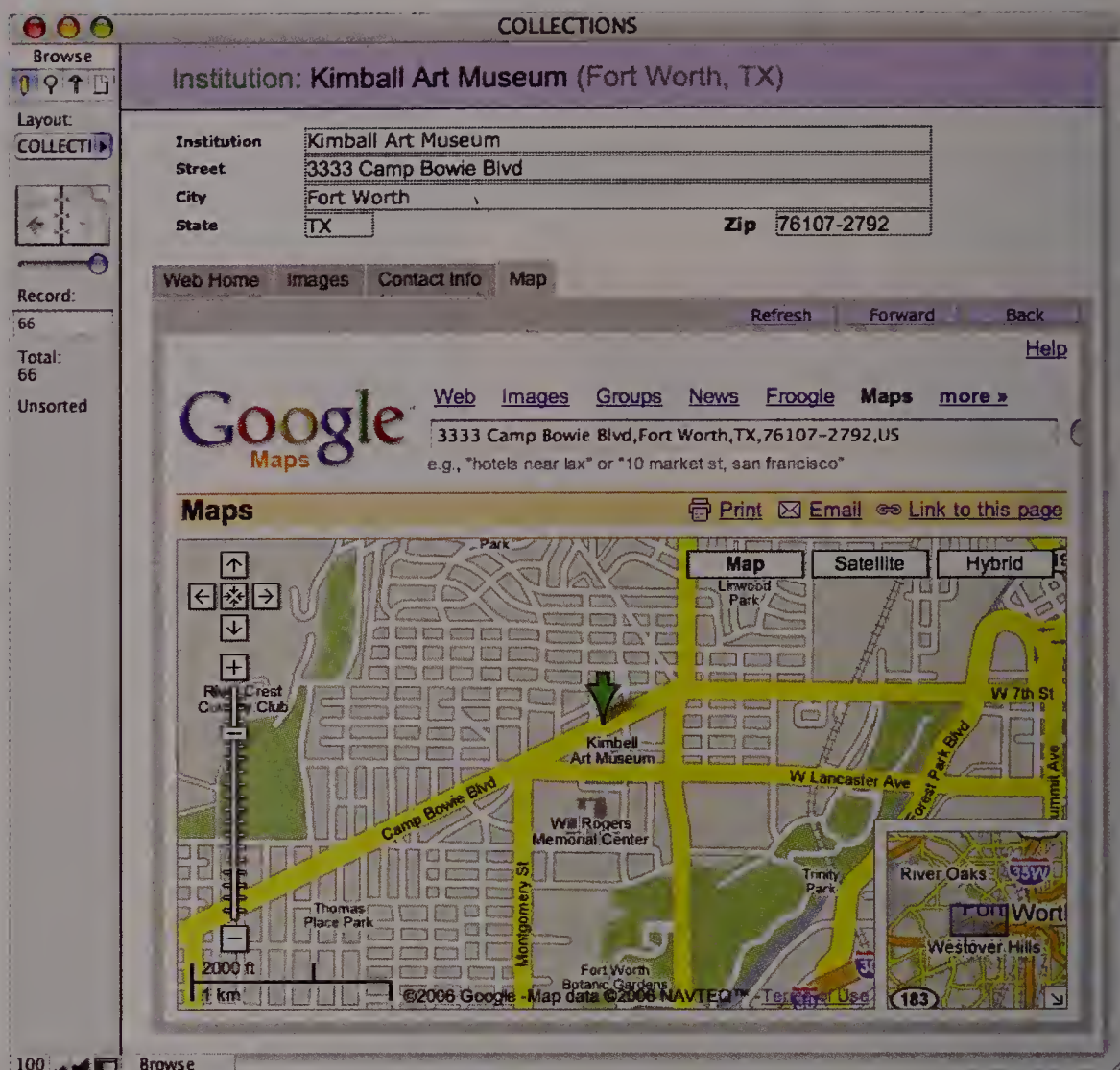
CONS: More-creative uses of new Web Viewer require advanced programming; Web Viewer can't easily be used to move data from the Web into FMP; you must scroll within the Web Viewer to see most Web pages.

PRICE: \$299; upgrade from FileMaker Pro 8, \$99; upgrade from FileMaker Pro 6 and 7, \$179; academic version, \$149; FileMaker Pro 8.5 Advanced, \$499

OS X COMPATIBILITY: 10.3 (Panther), 10.4 (Tiger)

PROCESSOR COMPATIBILITY: Universal

COMPANY: FileMaker, www.filemaker.com



Window to the Web This database uses a Tab Control to provide quick access to a number of Web Viewers. Each one brings different information about the museum from the Web into the database, but the Tab Control lets users see exactly what they want quickly, without having to poke around in a Web browser to find it.

package tracking), so beginners can make their layouts display Web content quickly and easily. And the Web Viewer lets you see Web and database content side by side.

The Web Viewer is especially exciting because it can display anything you can see online within a FMP layout. You can view Web pages, maps, stock quotes, news sites, videos, online photos, online inventory databases, or your credit card or bank statement. The Web Viewer can also display files—such as pictures, movies, PDFs, and Flash files—on your hard disk.

Web Viewer does have some limitations. You'll probably want it to take up only part of your screen, but you might be loading pages designed for viewing in a full browser window, so be ready to do some scrolling. Of the different ways to use the Web Viewer, only a handful are built into the Setup window. For the rest, you're on your own. And there is no easy way to extract data from the Web Viewer and save it in database fields.

More Enhancements

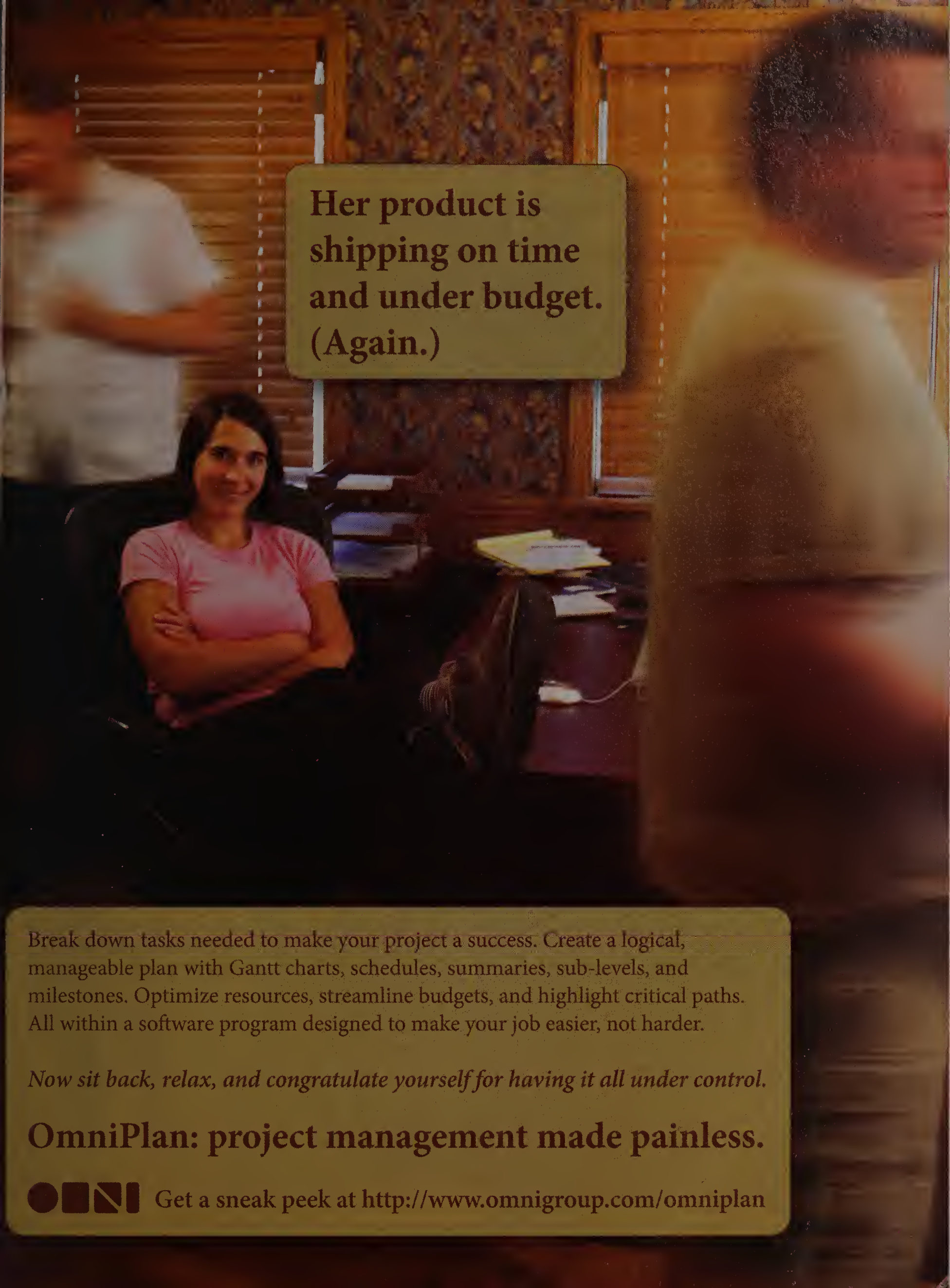
There are several more enhancements in version 8.5. For advanced developers, it

offers new object functions and script steps. My favorite is the ability to name layout objects, including individual tabs in the Tab Control. This means no more "stupid FMP tricks" are required to script the display of a particular tab on a layout. You can now go directly to a tab by name. Plus, FMP's new online Learning Center, accessible from within version 8.5's Help menu, promises to be a big help for less experienced users.

Macworld's Buying Advice

FileMaker Pro 8.5 is a modest upgrade, and I can't say that it's a must-have for all users. However, if you can make use of the Web Viewer feature in your databases, you won't be able to resist upgrading for long. And if you tend to run larger databases, the upgrade is worth the expense just for the speed increase. Finally, unlike the last two upgrades of FMP, this one won't break your old databases. (For a longer version of this review, see macworld.com/1642.) □

WILLIAM PORTER is an independent database applications developer and a writer in Dallas.



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Civilization IV Takes Progress to a New Level

Strategy Game Features 3-D Graphics and Animation

BY CYRUS FARIVAR

For history and world affairs buffs, there's something very gratifying about Sid Meier's Civilization IV. The epic series Civilization, from Aspyr Media, lets you create and evolve a civilization from 4000 BC to AD 2050.

Civilization IV is a highly conceptual, turn-based strategy game. For example, scientific research has practical benefits for your society, and discovering bronze working eventually leads to other metallurgical innovations. Cultural improvements can also help you. For example, creating libraries makes it more likely that your civilization will produce great researchers who will accelerate progress.

Civilization IV maintains functions from past games—move, sentry, skip turn, sleep, explore, and automate. A tutorial mode teaches you all the basics about improving your civilization—all narrated by Sid Meier himself (in animated, cartoon form). The game has many different types of single-player and cross-platform multiplayer options, including support for LAN, Internet, and Play-By-E-mail (PBEM) capabilities. Civilization IV includes additional scenarios, such as World War II simulations.

The shipping version of the game has some glitches, but these can be fixed with a downloadable patch from the company's Web site, so be sure to check out the update.

New Version, New Level

This update to the Civilization series takes the game to a whole new level. Like previous iterations, it introduces new nations, new technology, and new wonders of the world. Version IV also introduces new concepts (like religion), making it more realistic.

After a few turns and clicking around the various navigation and advisor buttons in the top right of the screen, you'll discover that Civilization IV replaces some concepts from older versions of the game, such as the type of government you form. Civilization IV uses a more complex concept called Civics—over



Starting from Scratch You can create a civilization from scratch in Civilization IV—explore your world and raise a mighty empire from dust—and then return it to dust if you don't get along with your neighbors.

time, your civilization discovers various types of governments, religions, and systems of labor, and you can mix and match these options. For example, at one point in my game, my Civics settings included Universal Suffrage, Nationhood, Emancipation, Free Market Economy, and Theocracy (Judaism).

Other additions include Great Engineers and Artists who, after building wonders of the world, can help increase your civilization's scientific or cultural achievements.

Battles Get Personal

Civilization IV sports a new game engine with some 3-D elements. When you engage in combat, the normal bird's-eye game screen will zoom down to the action, where you can watch larger-than-life units do battle. While Civilization IV lacks actual combat along the lines of World of Warcraft (★★★★; macworld.com/0967), its combat depiction is a big improvement on previous editions. During a war, you'll see the motions characters make associated with their military position, but there isn't any contact between military units. And unlike Civilization III (★★★★; macworld.com/1657), version IV lacks combat sound.

When your units have waged battle once, new options let you upgrade them so they gain more experience points and other advantages.

RAM-Based Performance

At first, Civilization IV plays very much like the previous editions of the game. The new version comes in Universal format, so I tested it on both a 1.83GHz MacBook with 512MB of RAM and my 2GHz Power Mac G5 Dual with 2.5GB of RAM. Thanks to the extra RAM, the game ran a bit more smoothly on the G5, but it was still fully playable on the MacBook. With an added 512MB of RAM (for a total of 1GB) on the MacBook, the game played much more smoothly. (Aspyr games do not officially support MacBooks and Intel-based Mac minis due to their integrated graphics chips.)

The increase in 3-D graphics and the greater complexity of simulation in areas like Civics explain why Civilization IV's system requirements are considerably higher than those of its predecessor—a G5 or better is mandatory for good game play.

Macworld's Buying Advice

Civilization IV is an incredible game that will provide you with hours of engrossing game play. While the added complexity of 3-D graphics and animation may seem like mere eye candy, it increases the game's immersive qualities and makes it a lot more fun. □

CYRUS FARIVAR is Macworld's assistant editor.

RATING: ★★★★★

PROS: New discoveries, wonders, and civilizations; more-complex game play in Civics; Universal.

CONS: 3-D battle sequences could be improved with better sound and animation; new version has higher system requirements.

PRICE: \$50

OS X COMPATIBILITY: 10.3 (Panther), 10.4 (Tiger)

PROCESSOR COMPATIBILITY: Universal

COMPANY: Aspyr Media, www.aspyr.com



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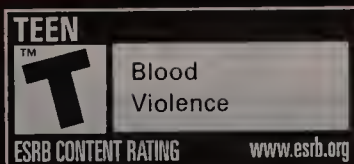
A new Age dawns on Macintosh in late October 2006.



"Visually stunning and brilliantly executed..."
-GameSpy

"Age of Empires III is a superbly balanced and polished game..."
-IGN

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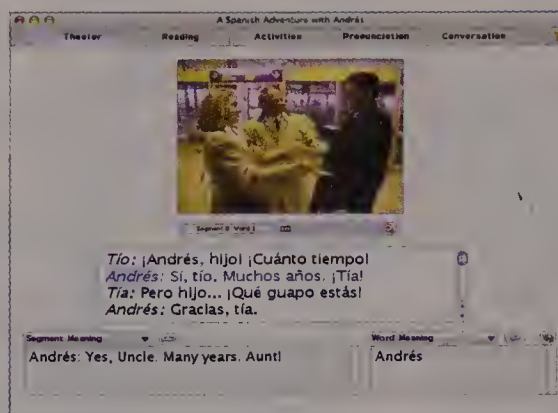
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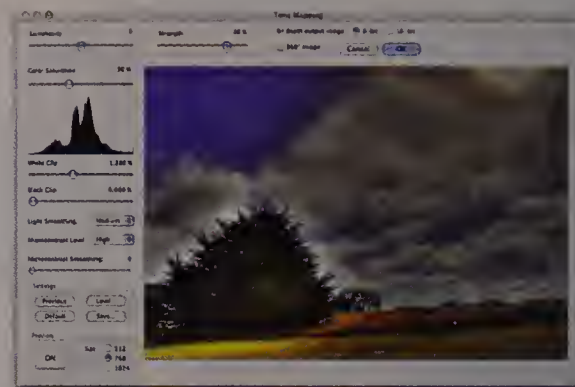
🔊🔊🔊 Berlitz Premier ▶ (\$40), from Nova Development (www.novadevelopment.com): Learning a foreign language can be tough. To help you get started, Berlitz, one of the better-known names in language instruction, has introduced Berlitz Premier, a new software series with packages in French, German, Italian, and Spanish, as well as English. While Berlitz Premier offers several different ways of learning a new language, none of them really come together in a productive manner. The total immersion technique is too difficult to follow, and the flash cards and games are too easy and disjointed (macworld.com/1703).

🔊🔊🔊 M-Audio Black Box ▼ (\$330), from M-Audio (www.m-audio.com): The choices for guitar players willing to take the plunge into the digital world of effects



and amp simulations are increasing each year. M-Audio's Black Box hardware device allows guitar players to play through a variety of simulated amplifiers and add an almost endless array of custom effects. The Black Box is lightweight and compact enough to take with you on the road, and it offers the power and options you'd expect from a much larger device (macworld.com/1704).

🔊🔊🔊 iBank 2.1 ▶ (\$40), from IGG Software (www.iggsoftware.com): Simple, elegant, and with a decidedly Mac-like interface, iBank 2.1.4 provides the basics of a personal budgeting tool in addition to some advanced features. For a beginning or intermediate user of financial management software, iBank is worth a look (macworld.com/1705).



🔊🔊🔊 Photomatrix Pro 2.2 ▲ (\$99), from Multimedia-Photo (www.hdrsoft.com): Photomatrix Pro 2.2.3 gives digital photographers several tools for getting the highest possible dynamic range out of a scene. You can use Photo-



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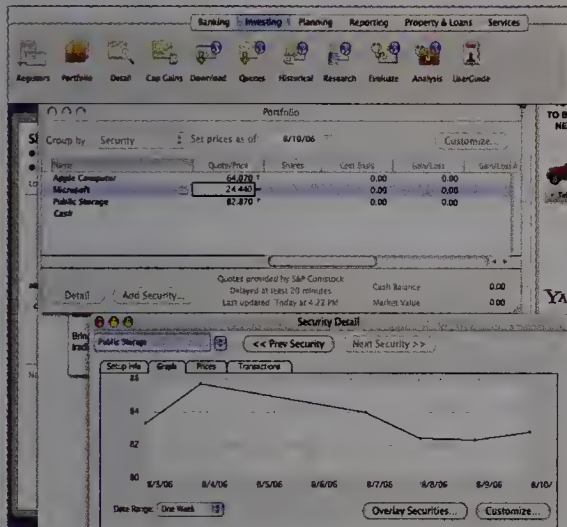
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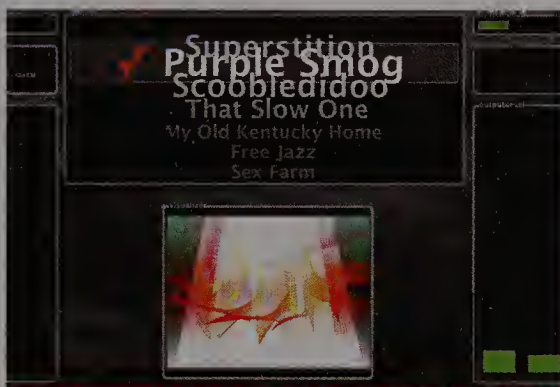
matix Pro to gently coax details out of dark shadows and bright highlights, or to create surreal scenes whose vivid colors and extreme contrast bear little resemblance to the real world. The steps aren't always straightforward—and they're complicated by Photomatrix's funky interface and scattered documentation—but if you can work through the complexities, the results can be stunning (macworld.com/1706).



★★★★ Quicken Mac 2007 ▲ (\$60), from Intuit (www.intuit.com): Shortcomings aside—chief among them the lack of support for Intel Macs—Quicken Mac 2007 is a financial-management package that performs well, lives

up to the reputation established by previous versions, and provides detailed reports. The new Dashboard widget makes short work of entering routine transactions, and the improved portfolio-tracking features offer a good reason to upgrade (macworld.com/1707).

★★★★½ Rax 2.0 ▼ (\$50), from plasq (www.plasq.com): Rax 2.0, a music utility, brings the same kind of easy access to virtual musical instruments and effects plug-ins that Apple's Front Row provides for music, videos, and photos. With a virtual mixer, the ability to create custom songs and sets, and a full-screen OnStage mode with support for live visualizers, this new version makes playing live music with your Mac easier than ever before. It acts as a digital hub for instruments, effects, and visuals in the studio and onstage (macworld.com/1708).

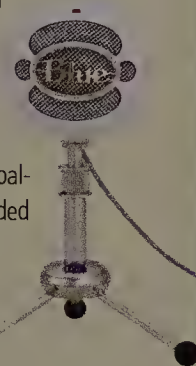


USB MICROPHONES

Easy Recording on Your Mac



Want to record vocals or instruments with your Mac? Check out Blue Microphone's Snowball or Samson's C01U. The Snowball's design and included stand (right) make it a good choice for recording audio from single and multiple sources. The Samson C01U (left) is a better option for capturing a single voice or instrument; its more-balanced frequency response and included software produce slightly better recordings. But neither mike provides studio-quality results (macworld.com/1709).



★★★★½ Snowball (\$159), from Blue Microphones (www.bluemic.com)

★★★★ Samson C01U (\$79), from Samson (www.samsontech.com)

Stan, you can depend on Ricoh color to stand out.



We could use a little color, Jerry.



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iPod Gear

For more iPod-related news and product reviews, visit playlistmag.com.

Headphones for Exercise

★★★★ A8 (\$160), from Bang & Olufsen (www.bang-olufsen.com): Bang & Olufsen's A8, a combination of earbuds and earclips, is extremely comfortable thanks to padded and adjustable clips. This headset's standout design and attractive aluminum finish are guaranteed to earn you envious looks from other people at the gym. These headphones provide good detail but, like most earbuds, lack quality bass. The \$160 price tag is high, but you'll be hard-pressed to find headphones that are more comfortable or better looking (macworld.com/2116).



★★★★ KSC-75 (\$20), from Koss (www.koss.com): The Koss KSC-75 earclip headphones provide impressive bass response, excellent detail and midrange, and good comfort in a surprisingly inexpensive package. The earclips are made of a thin metal band covered in translucent, stiff rubber. The result is a pair of relatively stylish headphones that fit securely (and comfortably). Because they don't have a headband, they're perfect for people who don't want to mess up their hair or who find traditional headphones uncomfortable (macworld.com/2168).



★★★★ Bass Freq (\$50), from V-moda (www.v-moda.com): Two things that make working out more enjoyable are bass-thumping music and the ability to block out other noise. V-moda's Bass Freq earbuds fit just inside your ear canals and provide both great sound blocking and high-quality music in a lightweight and comfortable design. Once you get a good seal (with the help of one of the three sizes of silicone ear tips), you get surprising bass without sacrificing detail, along with relief from the clanging of weights—and the distraction of other people's music—at the gym. The earbuds are available in eight colors and include a matching cable manager (macworld.com/1612).



★★★★ PMX 100 (\$50), from Sennheiser (www.sennheiserusa.com): Behind-the-head headphones have traditionally been overlooked by high-end headphone manufacturers. Sennheiser's PMX 100s are a nice exception to that rule. They have an unpadded plastic-and-metal band that wraps around the back of the head, and each earpiece has a thin plastic clip that helps hold the headphones on your head. It takes a bit of practice to get these clips onto your ears, but if you're a fan of the behind-the-head style, the PMX 100s are great for working out, offering bigger sound than earbuds without being too intrusive (macworld.com/1611).



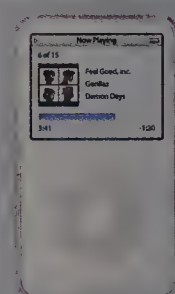
NEW: NANO SPEAKERS

★★★★ inMotion iM500 (\$130), from Altec Lansing (www.alteclansing.com): Altec Lansing's inMotion iM500 is an attractive and impressive compact speaker system for the iPod nano—ideal for carrying in a bag or backpack, thanks to its thin, portable design. The iM500 has good sound quality, USB connectivity, and an additional audio input. On the downside, the bulky AC adapter will probably convince you to power it with six AAA batteries instead (macworld.com/1613).



NEW: IPOD CASE

★★★★ iClear for iPod with Video (\$20), from Griffin Technology (www.griffin-technology.com): The iClear is a two-piece polycarbonate case that works with both the 30GB and 60GB models of the fifth-generation iPod. The front piece is clear, while the back is frosted. Most of the bottom of the case is open, making it easy to connect Apple's dock cable. Holes on the top provide access to your iPod's hold switch and headphone jack. Unfortunately, the headphone-jack opening is too small for larger plugs, but the case is very protective and adds little bulk to your iPod (macworld.com/1614).



iPODS

Product	Capacity	Rating	Price	Display	Battery-Life Maximum	Media Supported	More Information
 iPod	30GB	★★★★½	\$299	2.5-inch color	14 hours of music playback, 3 hours of slide shows with music, 2 hours of video playback	music, photos, album art, video	macworld.com/1020
 iPod	60GB	★★★★½	\$399	2.5-inch color	20 hours of music playback, 4 hours of slide shows with music, 3 hours of video playback	music, photos, album art, video	macworld.com/1021
 iPod nano	1GB	★★★★½	\$149	1.5-inch color	14 hours of music playback, 4 hours of slide shows with music	music, photos, album art	macworld.com/1175
 iPod nano	2GB	★★★★½	\$199	1.5-inch color	14 hours of music playback, 4 hours of slide shows with music	music, photos, album art	macworld.com/1022
 iPod nano	4GB	★★★★½	\$249	1.5-inch color	14 hours of music playback, 4 hours of slide shows with music	music, photos, album art	macworld.com/1023
 iPod shuffle	512MB	★★★★½	\$69	N/A	12 hours of music playback	music	macworld.com/0368
 iPod shuffle	1GB	★★★★½	\$99	N/A	12 hours of music playback	music	macworld.com/0369

N/A = not applicable.

NEW: IPOD WALLET

★★★★ WompWallet (\$18), from Womp Products (www.womp-gear.com): Like many other attempts at merging a wallet with an iPod case, the WompWallet for the iPod nano isn't exactly a success. The leather bifold case, which is available in various colors, just doesn't have enough room to be used as a wallet. Plus, the iPod slot isn't quite the right size for the nano—the leather around it bulges, leaving the Click Wheel somewhat misaligned. Within the WompWallet, the nano shifts around, making the hold switch difficult to access. The headphone jack is accessible when the wallet is closed, but to get to the iPod's dock connector, you have to remove your iPod from the case (macworld.com/1615).



Now THAT's a Great Pumpkin

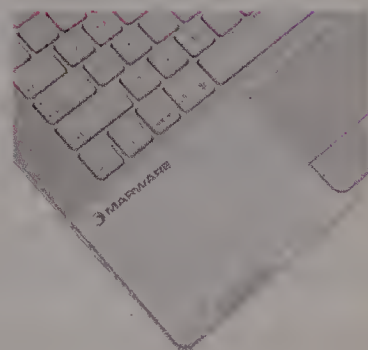
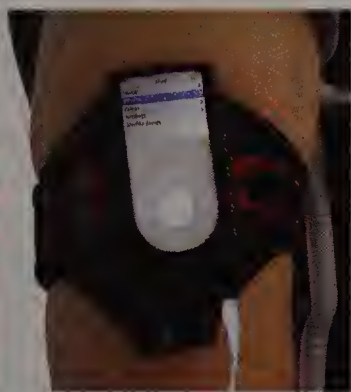
(Dr. Bott: No tricks, all treats)



Signature Series in Fall Colors from Case-mate

conscious Napa leather, included screen and face protectors, versatile and removable utility clip, quick entry and exit, and easy access to all features make the Signature case from Case-mate so very easy to love.

Also, it comes in ten fabulous colors.



SportSuit Sensor+

from Marware

Use the Nike+iPod transmitter to record and enhance your workout with your favorite shoes.

SportSuit Relay

from Marware

Versatile neoprene arm or wristband holds your nano and Nike+iPod Sensor receiver snugly.

Handle-it

from Case-mate

The best way to carry your MacBook or MBP from hither to yon. In white, black, or silver.

iClear

from Griffin

Like Wonder Woman's invisible jet, this case can fly invisibly at supersonic speed. For 5g and nano.

Protection Pack

from Marware

Keep your MacBook or MBP pristine with this wrist rest and microfiber keyboard cover.

Dr. Bott

Buy Dr. Bott products at your friendly neighborhood Apple retailer.
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KEYBOARD APP FOR KIDS

AlphaBaby 1.51

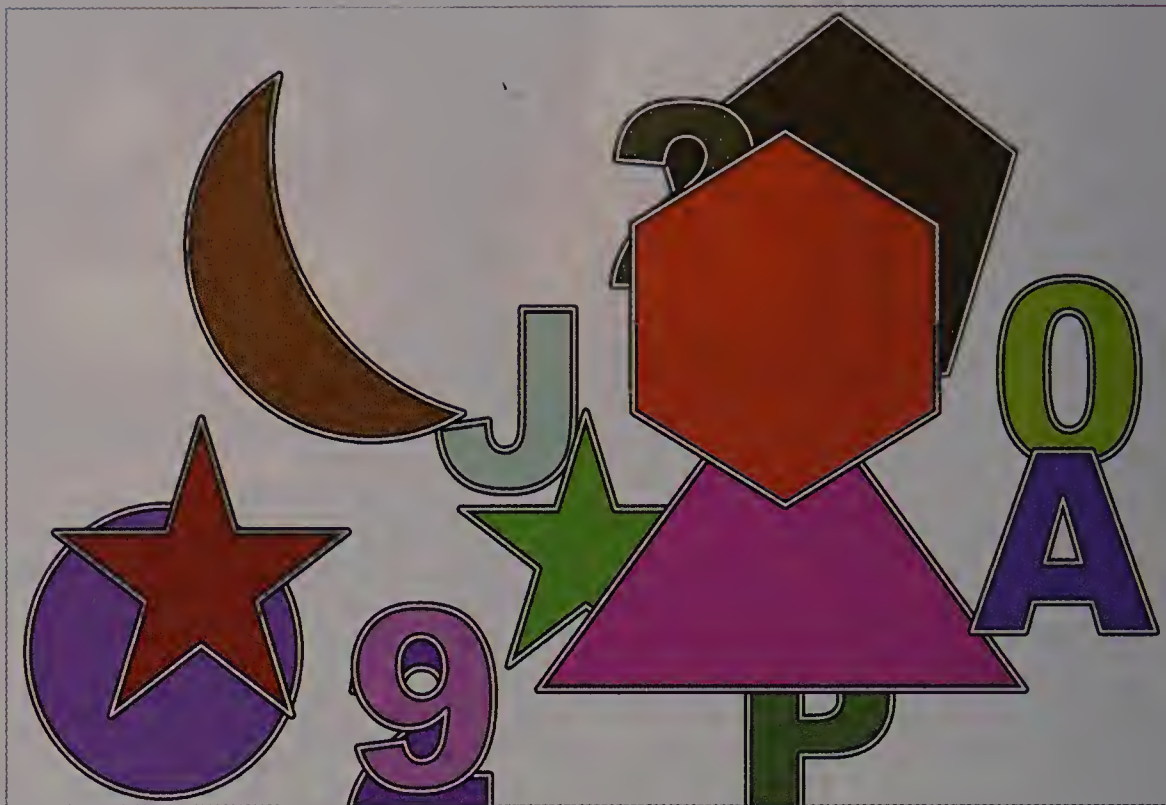
If you have a small child at home, you've likely discovered that kids love to bang on keyboards. In fact, the first time I held my then six-month-old daughter while sitting at my desk, she typed a few nonsensical lines and even managed to print out a document—accidentally, of course.

Cute as this tendency can be, you may have practical concerns—such as making sure your little one's little digits don't jumble the page design you've painstakingly laid out. It would be nice to be able to protect your progress from your progeny as well as make your Mac respond to your child in a more engrossing manner.

An old friend from the Educational Technology unit of UCLA's Graduate School of Education Information Studies recently informed me of a solution to both of these concerns: Laura Dickey's AlphaBaby 1.51 (♦♦♦♦; payment requested; macworld.com/1648) makes it safe (for your files) and fun (for your baby) to bang away.

When you launch AlphaBaby, it replaces your entire screen with a clean white background. As your child presses keys, large, colorful letters and shapes appear on the screen, complete with accompanying sounds. (To quit the app, you need to press ⌘-control-option-Q, or type the letters *q*, *u*, *i*, and *t* in rapid succession, so it's unlikely that your baby will manage to accidentally quit the program.) The only keys AlphaBaby doesn't take over are eject, volume, and brightness. I hope a future version can block these as well, especially considering that kids love to play with shiny objects—like a newly ejected CD or DVD.

AlphaBaby offers many useful options for customizing its on-screen display and actions. You can choose between a number of color palettes, including an Infant set limited to black, white, and red. You can also determine how often to wipe the screen clean. You can pick any font, the font size, and whether to display only



Toddler Typing Let your little one bash away at the keyboard with AlphaBaby.

capital or mixed-case letters. You decide how AlphaBaby responds to key presses in the Mode setting: the Single Letter mode displays only a single item (letter or shape) at a time, centered on your screen; Alphabet mode displays the letters of the alphabet and the numbers 0 through 9, one at a time and in order, regardless of the keys your baby presses; and Typing mode displays the characters of the keys your baby presses (nonalphanumeric keys produce spaces), starting in the upper left corner and continuing across the screen in lines.

When your child presses a nonalphanumeric key (except in Typing mode), AlphaBaby displays its own images—mostly simple geometric shapes—by default. But you can use your own folder of images or even an iPhoto album instead. (I found that once I chose the iPhoto album option, turning off that feature later didn't remove my photos from the pool of images, however.) You can also determine the display ratio of AlphaBaby's shapes to your own images (via a slider), and you can have AlphaBaby assign each of your images its own key.

Whenever an image appears on the screen, AlphaBaby plays a random sound from OS X's default sound folders. You can

also choose a different folder of sounds (in AIFF format) anywhere on your hard drive, or you can have AlphaBaby speak the names of letters, shapes, and images, as well as the color (for example, blue triangle), using OS X's built-in text-to-speech technology. One neat feature is that if you have a folder of images and a folder of sounds, you can match sounds with images by naming them similarly (for example, *daddy.jpg* and *daddy.aiff*).

If your child can use a mouse or trackpad, AlphaBaby can draw objects as he or she clicks and drags the cursor across the screen. You choose the object (stars, lines, squares, circles, ducks, or trucks), the color (fixed, random, or rainbow), and the size of the "line." You can also set it so a younger child can draw by simply moving the mouse.

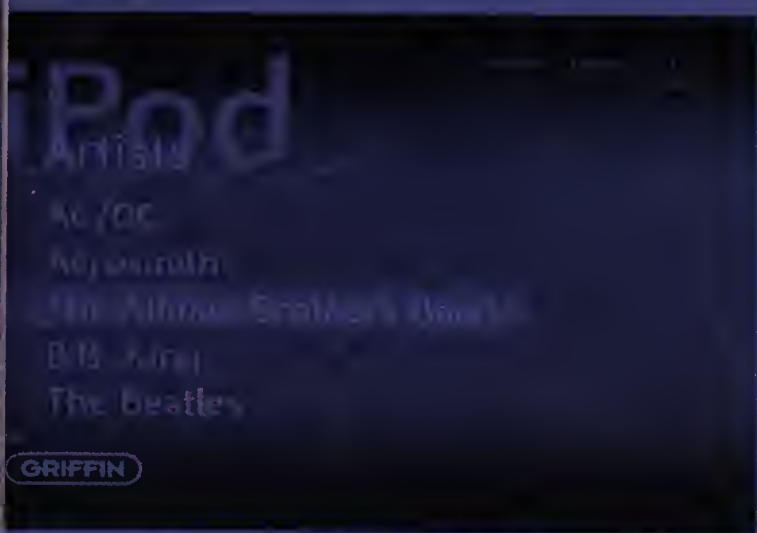
Finally—and this is one of my favorite features—AlphaBaby includes an OS X screen-saver module, which is a great way to ensure that your toddler doesn't destroy the next great American novel while you're grabbing a cup of coffee.

Now, I'm no childhood development expert, so I make no guarantees about AlphaBaby's efficacy as a learning tool. But I know that sometimes my daughter continues

GRIFFIN

TuneCenter

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SHOW
2006**
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- Display iPod playlists and song information on your TV screen
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- Browse and play Internet radio stations
- Share your photos and videos with the whole room
- Great for ultra-mobile business presentations

Designed for iPod



made for:
5th Generation iPod with video



limited functionality with:
3rd Generation iPod with
touch wheel and buttons



iPod nano



iPod mini



4th Generation iPod with Click Wheel
iPod photo
iPod U2 Special Edition
4th Generation iPod with Color Screen

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loves to sit and play with a keyboard, and AlphaBaby makes it more fun for her—and less worrisome for me.

APPLICATION SWITCHER

LightSwitch X 2.6

I've been a big fan of Proteron's LiteSwitch X—which replaces OS X's ⌘-tab application switcher with a more functional version—for a long time. Unfortunately, until recently it didn't work on Intel-based Macs. The long-awaited LiteSwitch X 2.6 (★★★★; \$15; www.proteron.com) takes care of that shortcoming and adds some new features.

Over the years, LiteSwitch X has become one of my must-install utilities, so I'm happy that I can finally run it on my MacBook Pro. But recently a number of people have raised the question—in e-mails to me and on Mac-centric blogs—of why someone would spend \$15 for functionality that's “already built into OS X.”

First and foremost, LiteSwitch lets you choose your preferred keyboard shortcut; you can't choose just *any* shortcut, but it gives you a variety of choices, so you'll probably find one you like. (With OS X's built-in switcher, it's ⌘-tab or nothing.) You can also prevent particular applications that you never access via the on-screen switcher—LaunchBar, DragThing, and Office Notifications, say—from showing up. Or, conversely, you can choose to display hidden (background) applications in the switcher.

LiteSwitch also lets you perform more actions on an application selected in the switcher. When an application is highlighted in LiteSwitch X's on-screen display, you can use keyboard commands to quickly switch to it, hide it, quit it, force-quit it, or switch to it and hide all other apps. If you click and hold (or control- or right-click) on an application's icon in the display, a contextual menu provides several additional options, including relaunch and force-relaunch. You can even drag and drop files onto apps shown in the switcher.

Former Mac OS 9 users will appreciate the fact that LiteSwitch X lets you customize window layering—for example, so that clicking on a window brings all windows from that application to the front. And I especially like the feature that automatically opens a new window in an application if no windows are open when you switch to it.

LiteSwitch also now includes integration with Cocomate's Path Finder 4.5 (version 4.1.1, ★★★★½; “Software Jackpot”; macworld.com/1678), a Finder replacement. And it has other options for customization, like choosing the color and transparency of its overlay and the position of the switcher on screen.

Granted, LiteSwitch X's appeal is probably limited to OS X geeks, productivity freaks, and people who enjoy power-user tweaks. And its individual features—not all of which I cover here—may seem minor. But as a whole, LiteSwitch X is

a major productivity booster that I can't do without.

SPOTLIGHT SEARCH TOOL

NotLight 1.4

Macworld's editors are both fans and critics of Spotlight, Tiger's advanced search technology. Most of our complaints revolve around Spotlight's interface—it makes performing simple searches difficult, it doesn't make more-advanced

continues

YOUTUBE CONVERTER

TubeSock 1.01

Ever been frustrated by your inability to download the cool Flash-based videos you find on YouTube? And wouldn't it be nice to watch them on the go? Stinkbot's TubeSock 1.01 (★★★★½; \$15; stinkbot.com) may be just the thing for you.

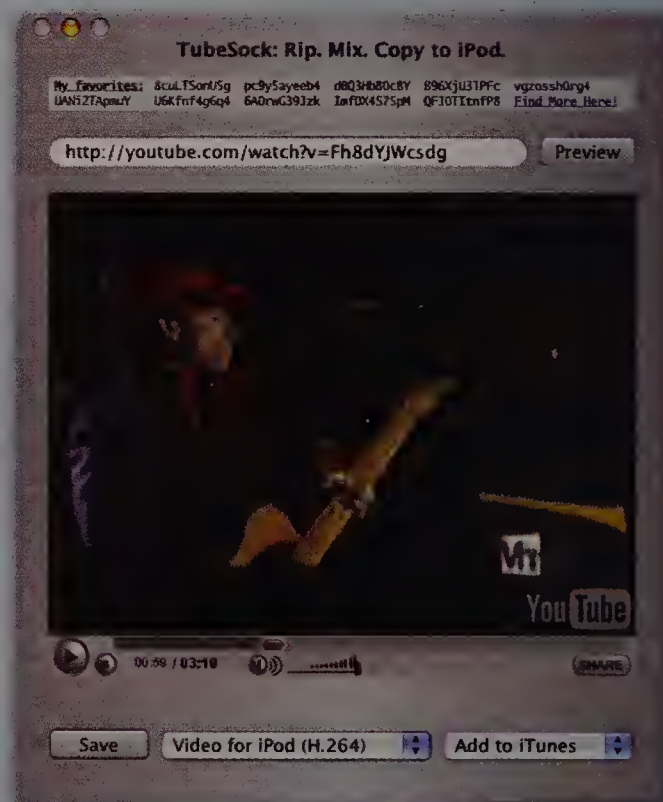
After launching TubeSock, you copy and paste the URL of any YouTube video (or just the 11-digit sequence of numbers and letters after the term *watch?v=* in the URL) into the app's navigation field and then click on the Preview button to verify that it's the right video. An even easier way to add a video to TubeSock is by choosing the Integrate With Safari command in the TubeSock menu—doing so brings up a browser window with a button you can drag into your bookmarks bar (it works with Apple Safari and Mozilla Firefox). Then, when you see a video you want to convert, click on the Show In TubeSock bookmark to send the URL directly to TubeSock.

Once you've chosen the video, pick the output settings (H.264 for iPod, MP4 for PSP, and so on) and then select the destination for the video (your iTunes library, your Movies folder, or another directory of your choosing). Click on the Save button, and TubeSock will download the Flash file and convert it to your chosen format.

If you're not blessed with an iPod that plays video, TubeSock's MP3 option will download the video and save just its audio track. Download any of the thousands of music videos found on YouTube and you'll understand the power and glory of this feature.

Thanks to TubeSock, I've now got a folder full of very cool video clips—appearances by the Rolling Stones and Howlin' Wolf on Shindig, George Harrison's induction into the Rock and Roll Hall of Fame with Prince completely tearing it up on the final solo of “While My Guitar Gently Weeps,” and Willie Mays's public service announcement about the dangers of blasting caps (you had to be there).

TubeSock isn't the only way to get videos out of YouTube and into a more Mac- and iPod-friendly format, but it's currently the best method. A promising free alternative, PodTube, still needs a lot of work, and other methods involve downloading YouTube videos via Safari's Activity window or Terminal, and then converting those videos—a real hassle. If you want offline access to YouTube videos, \$15 is a small price to pay for TubeSock's convenience.—CHRISTOPHER BREEN



Tube Tamer Want to carry YouTube videos on your iPod? Check out TubeSock.

RUGGED GOOD LOOKS.



LACIE RUGGED HARD DRIVE : DESIGN BY NEIL POULTON

Neil Poulton's inspiration for the Rugged design came from a Sci-Fi TV show about a hero named *Captain Scarlet* who drove the Spectrum Pursuit Vehicle. This futuristic 10-wheel drive, high-speed tank had a front bumper wrapped around its nose. It was tough, rugged and indestructible. With its internal hard disk mounted on four independent suspensions and its protective external bumper, the LaCie Rugged is the high-speed pursuit tank of hard drives. www.lacie.com

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MAC GEMS

searches accessible to the typical user, and it yields results that can be difficult to work with. Although Apple promises Spotlight improvements in Leopard (OS X 10.5), users will have to wait until next spring for them.

We've covered a few utilities in the past that improve Spotlight or take better advantage of its technology. I've recently discovered another such option: Matt Neuburg's NotLight 1.4 (🔗; free; macworld.com/1649).

NotLight uses Spotlight's indexes, so you get the same results as you'd get if you actually used OS X's own searching options. But NotLight provides two significant improvements on Spotlight's search functionality—it lets you easily perform more-precise searches and gives you more-useful results listings.

To access Spotlight's advanced search capabilities through NotLight, you first choose the type of search you want to perform: Display Name (a standard name search), Full Name (which may differ from the display name, depending on your system language and things like hidden file extensions), Content, Finder Comment, Extension, Type Code (the older file-type code from the classic Mac OS), and Modi-



Switched On Get more-powerful application switching with LightSwitch X.

fied Date. Text in the middle of the NotLight window explains each option in detail. (Spotlight doesn't appear to index Full Name, Type Code, and Modified Date information about files, so these searches are slower than the others, because they actually search your hard drive in real time.)

Then you type your search string in the text field. In NotLight, you can use asterisks as wild cards. For example, to find all files whose names begin with the word *personal*, you would pick the Display Name search and type *personal**; to find all files whose names contain that word, you would type **personal**; and to find all files whose names end with that word, you would type **personal*.

You can also specify additional search options via the check boxes below the text field. Word-Based means the search will find a match if a file's name includes any

word of your search term. Case-Insensitive means the search will ignore case (a search for Mac will find both *Mac* and *mac*, for example). Diacritic-Insensitive will ignore diacritical marks, such as the tilde (~) in *ñ*, when performing a Display Name search.

Finally, NotLight has the Insert Contains Wildcards option, which places an asterisk before and after the search term, as well as an option to make this the default search behavior. The latter option emulates Spotlight's standard search mode (as in Spotlight, you won't actually see the asterisks in your search field in NotLight). Wildcard searching is generally the preferred approach, because you'll get more results. However, at times when you want to find only files with names that match your search term exactly, you can disable the Auto-Contains mode.

THE CONQUEST

DiskWarrior is Now OS X Native

It's the indispensable utility that repairs problems such as disks that won't mount, files you can't trash, and folders that have disappeared. MacUser magazine said, "It's the fastest and safest data recovery utility you can buy."

Macworld magazine said, "DiskWarrior is by far the best disk utility available for the Mac; it can repair virtually any disk problem you may

encounter...and it is likely to become the only tool you'll want to keep with you at all times."

David Coursey, ZDNet AnchorDesk, agrees in an article comparing disk utilities. He used it to fix a disk that no other utility could. "DiskWarrior is a great product, not just because it fixed a pretty serious screw-up, but because it showed me what it planned to do in minute detail before doing it."

But disk damage isn't the only threat to your data. As hard drives get older, the drive mechanisms

THE UTILITY COMPANY



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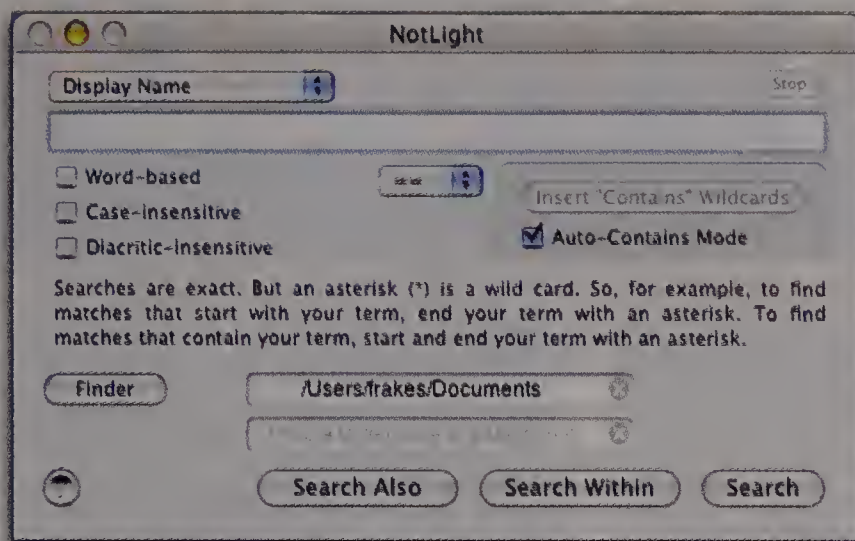
©2003 Alsoft, Inc. DiskWarrior is a registered trademark of Alsoft, Inc. Other product names are trademarks of their respective companies.

A pop-up menu lists Boolean operators, but for most text searches, you can ignore this; the menu is useful mainly for date and number searches.

Once you've set up your search query, click on the Search button to execute it. If you want to limit your search to a particular folder or a different volume, drag that folder or volume to the Drop A Folder Here To Search In It field near the bottom of the NotLight window (or, if the desired folder is the active Finder window, you can instead click on NotLight's Finder button). To search another folder simultaneously, drag it into the window too—you can search as many folders as you like.

Instead of the limited results list Spotlight's menu-bar search gives you, NotLight displays a full list of all results. And unlike Spotlight's results window, which forces you to click on a tiny *i* button to view important file information, NotLight's results window lists each file's name and path, as well as its modified date and icon (optional). Double-clicking on a file name in the list reveals it in the Finder.

NotLight also makes it easier than Spotlight to perform more-complex (AND, OR, and NOT) searches. And power users can take advantage of NotLight's advanced



Search Party NotLight makes it easier to perform advanced searches of Spotlight data.

search drawer, accessible by clicking on the umbrella-icon button. NotLight's excellent help explains how to use this feature to perform complex searches in one step, and how to search using Spotlight's advanced search syntax. You can even save search parameters for later use.

Date searches are also very easy. You can choose one of several predefined date-based queries, enter a relative time (*Time Ago* or *From Now*), or enter a specific date and time—searching, for example, for all files modified in the past week.

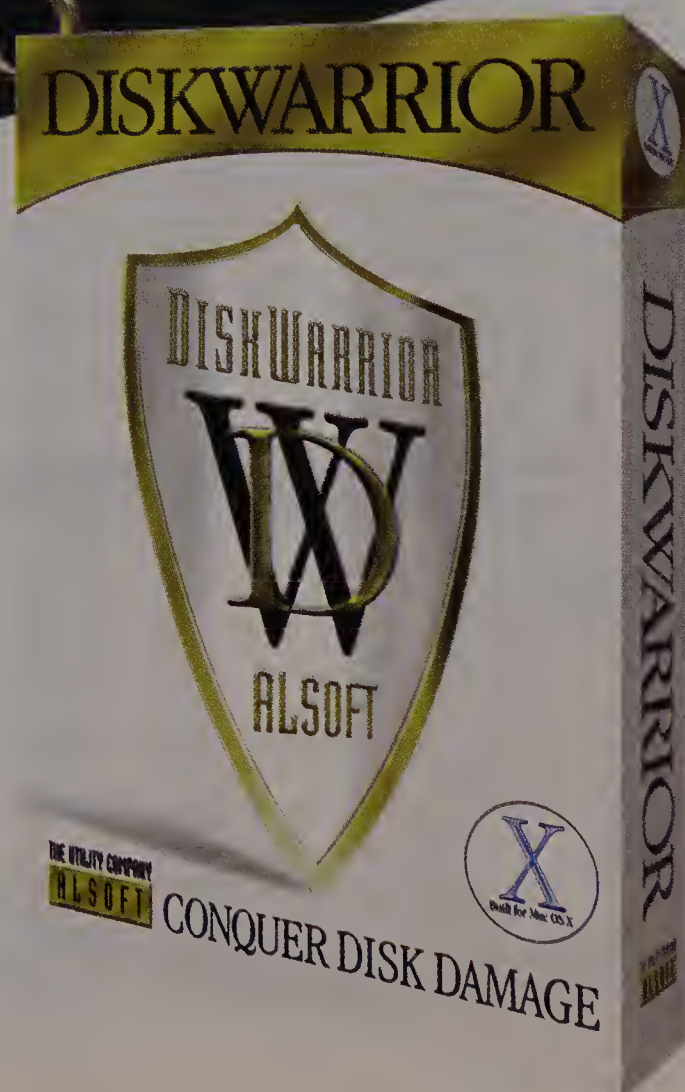
the ability to search for invisible files (although invisible-file search is broken in Spotlight, so it wouldn't work in NotLight anyway). I'd also like to be able to exclude particular folders and specific paths from a search—but Spotlight's search syntax doesn't have an easy way to do this, so NotLight isn't to blame for this omission. □

DAN FRAKES is a senior editor at *Macworld* and the senior reviews editor at playlistmag.com. Send your thoughts on this column, or on things you'd like to see in future columns, to macgems@macworld.com.

CONTINUES

begin to malfunction. Eventually, the malfunctions become so severe that the drive simply stops working. DiskWarrior can automatically test for hardware malfunctions, giving you the chance to back up your data before it's too late.

Be prepared. Don't wait until after you have a disk disaster to buy your copy of DiskWarrior. Bob LeVitus, aka Dr. Mac, said, "I feel naked without DiskWarrior." You can believe MacHome magazine when they said, "DiskWarrior is a quick, one-click solution to faster, more stable hard drives."



Top Products

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COLOR LASER PRINTER

★★★★ Magicolor

2430 DL (\$499), from Konica Minolta (www.konicaminolta.com):

The Magicolor 2430 DL, a capable networked color laser printer, is a great buy for a home office, a small workgroup, or anyone who doesn't need PostScript support. Beware: this printer is noisy (macworld.com/0635).



INK-JET PHOTO PRINTER

★★★★½ Stylus Photo R340

(\$200), from Epson (www.epson.com):

The Epson Stylus Photo R340 prints the best color photos in its class, and it reproduces shadow detail extremely well. Its black-and-white prints are subpar, though, and can show slight color casts (macworld.com/0948).



FIREWIRE DRIVES

DESKTOP DRIVE

★★★★½ **Black Series Triple Interface, 250GB** (\$240), from Iomega (www.iomega.com):

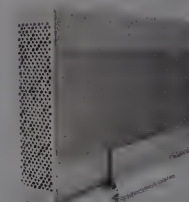
You can't go wrong with its speed, connection options, and low price per gigabyte. This drive can boot OS X via FireWire and includes Retrospect Express (macworld.com/0580).



ALSO RECOMMENDED:

★★★★½ **Mercury Elite-AL Pro 7,200 rpm FireWire 800/400 + USB2, 250GB** (\$230), from OWC (www.macsales.com):

This speedy drive can boot OS X via FireWire and includes Retrospect Express. It also has multiple connection options (macworld.com/0580).



MINIDV CAMCORDER

★★★★ **PV-GS500** (\$1,000), from Panasonic (www.panasonic.com):

This well-made camcorder takes great-looking video and stills (macworld.com/1673).

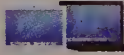
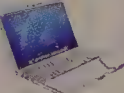


MACS

DESKTOP

Product	Processor	Display	Rating	More Information	Best Price ^A	Speedmark 4.5 Score ^B
	Intel Core 2 Duo/1.83GHz	17 inches	★★★★	macworld.com/1727	\$990	202
	Intel Core 2 Duo/2GHz	17 inches	★★★★½	macworld.com/1728	\$1,194	232
	Intel Core 2 Duo/2.16GHz	20 inches	★★★★½	macworld.com/1729	\$1,494	245
	Intel Core 2 Duo/2.16GHz	24 inches	★★★★½	macworld.com/1730	\$1,999	245
	Intel Core Duo/1.66GHz	not included	not yet rated	macworld.com/1731	\$594	not yet tested
	Intel Core Duo/1.83GHz	not included	not yet rated	macworld.com/1732	\$794	165
	Intel Xeon/two dual-core 2.66GHz	not included	★★★★	macworld.com/1646	\$2,366	299

PORTABLE

	Intel Core Duo/1.83GHz	13 inches	★★★★½	macworld.com/1449	\$1,075	154
	Intel Core Duo/2GHz	13 inches	★★★★½	macworld.com/1450	\$1,258	161
	Intel Core Duo/2GHz (black)	13 inches	★★★★½	macworld.com/1451	\$1,299	161
	Intel Core Duo/2GHz	15 inches	★★★★	macworld.com/1475	\$1,650	167
	Intel Core Duo/2.16GHz	15 inches	★★★★	macworld.com/1476	\$2,149	167
	Intel Core Duo/2.16GHz	17 inches	★★★★	macworld.com/1383	\$2,429	193

^AFrom a PriceGrabber survey of retailers as of September 13, 2006. ^BSpeedmark 4.5 is Macworld Lab's standard test tool for benchmarking systems running Mac OS X 10.4 (Tiger). For information on Speedmark testing, go to www.macworld.com/speedmark.

PORTABLE DRIVE

★★★★ **Rocbit 2B** (\$230), from Rocsecure (www.rocsecure.com):

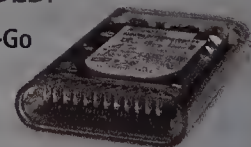
Rocsecure's Rocbit 2B, with 40-bit encryption, is priced a bit higher than similar unencrypted portable drives, but it is well worth the premium if security is a concern. Once mounted, the Rocbit 2B behaves exactly like any other Mac volume, and it is pleasantly quiet, even during disk activity (macworld.com/1443).



ALSO RECOMMENDED:

★★★★ **Mercury On-the-Go 7,200 rpm 8MB, 60GB** (\$250), from OWC (www.macsales.com):

Loaded with useful utilities, this little drive has good connection options and an eye-catching design. It's also fast; it can boot OS X via FireWire and is powered by the FireWire bus. It includes Retrospect Express, other utilities, and a carrying case (macworld.com/0580).



★★★★ **MiniMax 250GB** (\$250), from Iomega (www.iomega.com):

If you own a Mac mini, you should check out the MiniMax. It fits neatly under the mini, and its integrated USB and FireWire hub makes it a great companion to the littlest Mac (macworld.com/1159).



FLATBED SCANNER

★★★★½ **CanoScan 9950F**
(\$399), from Canon
(www.canon.com):

The CanoScan 9950F offers improved scan quality and more-intuitive software controls. This model tops its predecessor, the 9900F, in almost every way—resolution, color accuracy, transparency, scan quality, and software interface (macworld.com/0188).

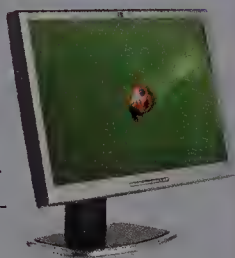


LCD MONITORS

23-INCH DISPLAY

★★★★½ **L2335** (\$1,599),
from Hewlett-Packard
(www.hp.com):

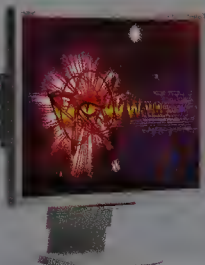
Along with its outstanding value, analog and digital connectors, ability to pivot to portrait mode, and adjustable height, the L2335 provides excellent video-in options and very good color fidelity and viewing angle (macworld.com/0278).



20-INCH DISPLAY

★★★★½ **MultiSync LCD2070NX** (\$799),
from NEC (www.necdisplay.com):

The MultiSync LCD2070NX is great for people who want a moderately priced 20-inch monitor that can display bright, accurate colors. It sports digital and analog inputs, an integrated USB 2.0 hub, and a thin bezel (macworld.com/0636).



17-INCH DISPLAY

★★★★ **UltraSharp 1707FP** (\$279), from Dell
(www.dell.com):

Budget-conscious display shoppers won't be disappointed by this highly flexible 17-inch monitor that has a built-in USB hub. Its display of text is very good, and its color is pleasing. It has an impressive range of motion: it pivots, tilts, and swivels. The only problem is a limited viewing angle (macworld.com/1259).



DIGITAL CAMERAS

8-MEGAPIXEL DIGITAL SLR

★★★★½ **EOS Digital Rebel XT** (\$899; with lens, \$999),
from Canon (www.canon.com):

Canon defined this market with the original Digital Rebel, and the company keeps its lead with the EOS Digital Rebel XT. The Rebel XT is a very small camera—much smaller than the original Rebel. The XT's feature set, image quality, and price, combined with the vast assortment of available Canon mount lenses, make it the best choice in the sub-\$1,000 digital-SLR market (macworld.com/0535).



ADVANCED DIGITAL CAMERA

★★★★ **Panasonic Lumix DMC-FZ30K**
(\$700), from Panasonic
(www.panasonic.com):

The Panasonic Lumix DMC-FZ30K is a sizable beast: at 1.5 pounds and just over five inches long, it feels more like an SLR than an all-in-one camera. The chunky body may be a blessing for people with large hands, who often find smaller cameras uncomfortable. The DMC-FZ30K's SLR styling is well suited to photographers eager for manual controls. The camera's images look great when taken in good light, but noise can quickly become a problem at higher ISOs (macworld.com/1157).



DUAL-LAYER DVD BURNER

★★★★ **PX-716UF DVD±R/RW** (\$239),
from Plextor
(www.plextor.com):

The PX-716UF DVD±R/RW drive features flexible connectivity options; it burns 2.4x-rated dual-layer media at 4x; it has fast 16x burn speeds; and it has the fastest read speeds of the drives we've tested (macworld.com/0313).



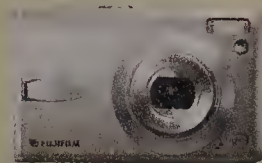
IN THE LAB

Hardware Products We Tested This Month

6-MEGAPIXEL DIGITAL CAMERA

★★★★½ **FinePix F30**
(\$399), from Fujifilm
(www.fujifilm.com):

The unassuming FinePix F30 is a master at low-light photography. The sensitivity of most cameras this size usually tops out at ISO 400 or 800, but you can crank Fujifilm's proprietary sensor all the way up to ISO 3200. The F30 also earned high scores for sharpness and low distortion. But the F30's manual setting doesn't let you adjust aperture size or shutter speed. And it uses an unpopular memory-card format (macworld.com/1668).



COLOR LASER PRINTER

★★★★½ **C6100dn**
(\$1,102), from Oki Data
(www.okidata.com):

If you're in the market for a color laser printer, the Oki C6100dn has a lot to offer small and midsize workgroups. It produces great-looking prints, and it has built-in duplexing, quick print speeds, and easy network connectivity (macworld.com/1670).



MULTIFUNCTION PRINTER

★★★★ **AcuLaser CX11NF**
(\$800), from Epson (www.epson.com):

The Epson AcuLaser CX11NF has it all: it's a color laser printer, sheet-fed scanner, copier with networking capabilities, and fax machine. Aside from its somewhat complicated network setup, this inexpensive color laser multifunction printer performed impressively (macworld.com/1669).



POINT-AND-SHOOT DIGITAL CAMERA

★★★★½ **PowerShot SD630** (\$350), from
Canon (www.canon.com):

The PowerShot SD630 is the first camera in Canon's expanding Digital Elph line to offer a three-inch LCD, which makes short work of composing your shots and then showing them off to your friends. This 6-megapixel camera has plenty of features for most casual photographers (macworld.com/1671).



Cameras were tested in conjunction with the PC World Test Center.

Top Products are those we've recently reviewed in a comparison of like products. As new products become available, we will update the list. For longer reviews of these products and for other product recommendations, go to macworld.com/reviews. All prices are as rated. For the best current prices, go to macworld.pricegrabber.com. All products were available as of August 15, 2006.

Inside the **Mac Pro**

PHOTOGRAPHY BY PETER BELANGER

Apple's professional-level desktop systems have always been designed with one thing in mind: speed. And that hasn't changed just because the Power Mac is now history. The Mac Pro shares its predecessor's silvery good looks and its commitment to speed at all costs. But beneath that familiar case, the Mac Pro is a very different system. It

not only contains Intel's powerful Xeon processors, but also provides dramatically increased storage and connectivity options.

Want to know more about what makes this ultrafast Mac tick? Read on. To see whether all of these changes truly add up to a superior machine, see our lab tests and our full review (page 60).

We Dissect, Test, and Review Apple



e's Powerful New Desktop System

THE MAC PRO: What's Inside

OPTICAL DRIVES While the last Power Macs had room for just one optical drive, the Mac Pro fits two. **Page 59**

HARD DRIVES The Mac Pro has four drive bays that slide out easily. **Page 56**

CPU Two dual-core Xeon 5100 processors and their heat sinks hide next to one of the Mac Pro's four fans. **Page 53**

GRAPHICS You can opt for one of three PCI Express graphics cards—two of which require extrawide slots. **Page 58**

RAM The Mac Pro uses new FB-DIMM memory, which sit on these slide-out trays. **Page 54**

THE CPU: Meet the Xeon



Although Intel has been using the Xeon name since 1998, the two dual-core Xeon 5100 series processors (code-named “Woodcrest”) that power the Mac Pro are entirely new.

Originally designated a “server” chip, the Xeon 5100 series was designed to offer fast computational throughput while using less energy (and thus producing less heat) than Intel’s previous high-end processors. So the chip should be particularly well suited to computation-heavy professional apps such as Apple’s Final Cut Pro and Aperture, and Adobe Photoshop (once Photoshop becomes Intel-native).

Speed Demon Mac Pro buyers can choose between three processor speeds: 2GHz, 2.66GHz, and 3GHz. Like the G5 chip used in the last generation of

Power Macs, and the Core Duo chip used elsewhere in Apple’s Intel lineup, each Xeon processor has two built-in cores. Both cores run at the same speed and share 4MB of Level 2 cache. But unlike the cores on previous dual-core processors, either of the Xeon’s processor cores can take advantage of the entire cache if necessary. Overall, you’ll see the biggest speed gains in programs that have been written to take advantage of both of the Mac Pro’s dual-core Xeon chips (see “Built for Speed”).

With the Xeon 5100, Intel claims that it has also eliminated the one remaining

performance advantage held by the PowerPC architecture: vector processing. Known to Mac users as AltiVec or Velocity Engine, the PowerPC’s vector-processing technology was one of the reasons that applications such as Photoshop were able to manipulate large files with ease, even when parts of the Mac subsystem were slower than those of comparable Intel-based PCs.

The Xeon 5100 includes a feature called Advanced Digital Media Boost. With the help of this technology, the Xeon can execute 128-bit vector-based instructions in one clock cycle, instead of the two clock cycles that previous Intel processors required. This theoretically doubles the speed of vector operations, and it puts Intel processors on a par with AltiVec-enabled PowerPC processors.

Cool Runnings In the past, all of this speed would have significantly increased both power consumption and heat output. That is why the Power Mac G5 requires nine fans, as well as a liquid cooling system. But multiple-core chip designs are much more efficient than single-core designs—they provide tangible increases in performance without linear increases in power consumption. This is part of the reason that the Mac Pro can get away with having just four fans.

Although it’s hard to compare the true power efficiency of the Xeon 5100 series with the dual-core G5 processor (in part because Intel and IBM don’t use the same units of measurement or the same nomenclature when discussing power efficiency), the fact that Apple has been able to eliminate so much of the Power Mac’s cooling apparatus says quite a bit about this Xeon’s efficiency.

Looking Forward If the idea of four processor cores in one Mac Pro gets you excited, just wait. Intel is working on a quad-core successor to the Xeon 5100 series. How does an eight-core Mac Pro sound to you?—RICK LePAGE

BUILT FOR SPEED

The good news is that all Mac Pros come with two dual-core processors. The bad news is that not all applications really know how to put two processors to work—much less four. The one application that consistently shows the benefit of multiple processors is Maxon’s Cinema 4D XL. Our 3GHz Mac Pro took nearly twice as long to render our test scene when two of its four cores were shut down, and twice again as long with just one functioning core. At the other end of the performance spectrum, Unreal Tournament couldn’t care less which processor you have installed, because it relies so heavily on your graphics card. Other applications fall in between. Apple’s iTunes was 22 percent slower when using two cores instead of four, and 55 percent slower when using one core instead of four. Apple’s Compressor, however, took 28 percent longer to encode our test file with two out of four cores, and 88 percent longer with just one processing core turned on.—JAMES GALBRAITH

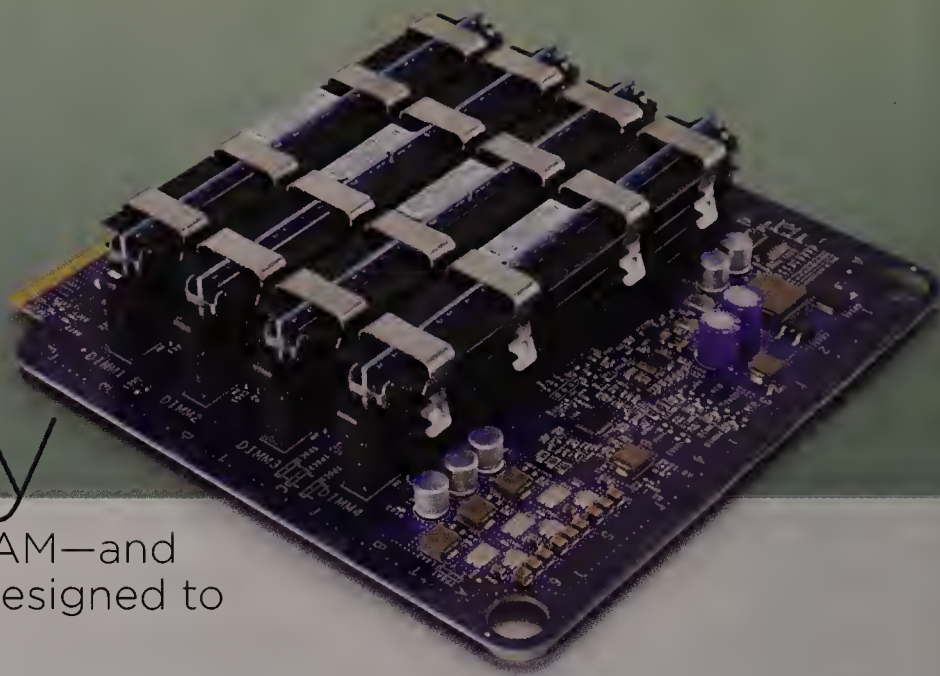
	Adobe Photo-shop CS2	Cinema 4D XL 9.5.21	Compressor 2.1	iTunes 6.0.4	Unreal Tournament 2004
	SUITE	RENDER	MPEG-2 ENCODE	MP3 ENCODE	FRAME RATE
Mac Pro/3GHz (all cores enabled)	1:16	0:24	1:42	0:45	93.0
Mac Pro/3GHz (two processing cores disabled)	1:25	0:44	2:11	0:55	93.0
Mac Pro/3GHz (three processing cores disabled)	1:46	1:22	3:12	1:10	91.8
	<Better	<Better	<Better	<Better	>Better

BEST RESULTS IN BOLD.

Adobe Photoshop, Cinema 4D XL, Compressor, and iTunes scores are in minutes:seconds. All systems were running Mac OS X 10.4.7 and had 1GB of RAM. We used Apple’s CHUD tool to disable processors. The Photoshop Suite test is a set of 14 scripted tasks using a 50MB file. Photoshop’s memory was set to 70 percent, and History was set to Minimum. We recorded how long it took to render a scene in Cinema 4D XL. We used Compressor to encode a 6-minute-and-26-second DV file using the DVD: Fastest Encode 120 minutes - 4:3 setting. We converted 45 minutes of AAC audio files to MP3 using iTunes’ High Quality setting. We used Unreal Tournament 2004’s Antalus Botmatch average-frames-per-second score; we tested at a resolution of 1,024 by 768 pixels, at the Maximum setting, and with both audio and graphics enabled.—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JERRY JUNG

RAM:

Maxing Out Your Memory



Professional applications demand fast RAM—and plenty of it. Fortunately, the Mac Pro is designed to make these apps happy.

The Mac Pro ships with 1GB of RAM, in the form of two 512MB modules. But those aren't just any old memory chips. For the first time, Apple is using Fully Buffered DIMMs, or FB-DIMMs.

A New Breed of Memory FB-DIMMs have several technical advantages over the memory modules in the Power Mac. They run at 667MHz, the same speed as the memory in other Intel-based Macs but faster than the Power Mac G5's 533MHz memory. They also have a maximum data path of 256 bits, built-in error checking and correction, and an on-board chip—the

Advanced Memory Buffer, or AMB—that controls data transmission.

Because that AMB creates extra heat, each FB-DIMM also comes with its own heat sink—another reason that the Mac Pro doesn't need as many fans or cooling zones as the Power Mac.

Improving Your Memory The Mac Pro has eight RAM slots, divided between two riser cards that pull out of the machine. They can accommodate a total of 16GB of RAM (using eight 2GB modules). To take full advantage of the new memory architecture's 256-bit data path,

you'll need to use at least four DIMMs (to see just what effect adding RAM has, see "The Memory Challenge").

If you buy a Mac Pro with the maximum RAM installed, Apple will add \$5,700 to the Mac Pro's base price. Because Apple charges a premium, buying RAM from third parties is usually a more cost-effective way to boost your Mac's memory. If you take that do-it-yourself route with the Mac Pro, Apple says that you must install RAM in pairs of the same size and from the same vendor. So buying RAM in matched kits is a good option.

At press time, only a handful of vendors were selling RAM for the Mac Pro. However, Apple is sharing the thermal specifications for the Mac Pro's modules, so more companies will probably be offering compatible modules soon.

When we checked, 1GB kits (two 512MB modules) were selling for around \$250, while 2GB kits (two 1GB modules) were going for around \$400. This means that buying 16GB of RAM from a third-party vendor will currently run you \$3,200 to \$3,500—more than \$2,000 less than Apple charges.

With all third-party RAM, it's best to purchase modules that specifically support your system. And in the case of the Mac Pro, that's not just a recommendation—it's a requirement. Apple cautions that installing FB-DIMMs that don't have sufficient heat sinks can cause louder fans and slower memory chips. It's also a good idea to buy RAM that comes with a lifetime warranty, in case of any problems.

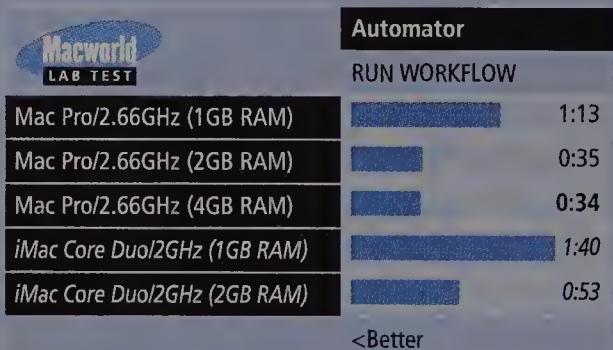
Wherever you get your new RAM, Apple's new riser system makes installing it a snap. You just pull out a riser, place it on a flat surface, and seat the RAM modules in place. After you're done, you slide the riser back into place and then restart your system.—JONATHAN SEFF

THE MEMORY CHALLENGE

The Mac Pro's standard configuration includes a pair of 512MB FB-DIMMs (for a total of 1GB), which occupy just two of eight available RAM slots—far less than the new Mac's 16GB capacity. The memory modules the Mac Pro requires are expensive (maxing out your Mac Pro will set you back an additional \$5,700 at the Apple store), so you may be wondering what kind of performance gains those extra dollars will get you.

In the past, we've had difficulty coming up with tests that truly showed the benefits of installing more memory. OS X is very good at accommodating one memory-hungry task at a time, which is how most of our tests run. However, using Apple's Automator and some helpful action files available from the Complete Digital Photography Web site (www.completedigitalphotography.com), we were able to create an Automator workflow that tested the advantages of increased RAM when the Mac Pro is switching between multiple applications such as Apple's Aperture and iPhoto, and Adobe Photoshop. With the stock 1GB of RAM, the Mac Pro took more than twice as long to complete our workflow as it did with 2GB (four 512MB DIMMs) installed. A Mac Pro with 4GB of RAM (four 1GB DIMMs) returned about the same results as the 2GB configuration, suggesting that we'd need to increase the file sizes dramatically to see the benefit of 4GB of RAM.

It's also worth noting that doubling the RAM from 1GB to 2GB produced a more noticeable effect in the Mac Pro than in an iMac Core Duo. An iMac outfitted with 2GB of RAM was 41 percent faster than the same system with just 1GB installed, while the Mac Pro was 52 percent faster with 2GB of RAM than with 1GB.—JAMES GALBRAITH



BEST RESULTS IN BOLD. REFERENCE SYSTEMS IN ITALICS.

We created an Automator workflow that included Aperture, Photoshop, iPhoto, iTunes, and TextEdit actions. We then recorded how long the Mac Pro took to run through the workflow with different amounts of RAM installed.—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JERRY JUNG

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– Suzanne McClellan, Art Director, Circuit City

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HARD DRIVES: Room to Grow



One nice thing about the G4-based Power Macs was that they had lots of room inside for things like internal hard drives. Then the Power Mac G5 arrived.

The G5 halved the number of internal hard drives to two and made the process of installing them more complicated. The Mac Pro is a nice step forward in both respects.

The standard Mac Pro includes one 250GB hard drive. Like the Power Mac G5, the Mac Pro uses SATA hard drives. But while the Power Mac supported SATA drives with a maximum bandwidth of 1.5 gigabits per second (Gbps), the Mac Pro supports the second generation of SATA drives—sometimes known as SATA II or SATA-300—which have a maximum potential bandwidth of 3 Gbps (for a review of SATA drives, see “Thinking Big: SATA Hard Drives,” page 26). However, this doesn’t actually translate into doubled speed—drive mechanisms aren’t currently fast enough to pump out that much data in that amount of time.

Swimming in Storage If you need more internal storage but only want one drive, Apple will bump that 250GB drive up to 500GB, for \$200. Or you could fill the Mac Pro’s four easy-to-access hard-drive bays with Apple’s 500GB hard drives (at \$400 at piece) for 2TB (terabytes)—that’s 2,000GB—of storage.

Of course, you can do even better than that (and spend less money) if you take your business elsewhere. For example, you can buy a Seagate Barracuda 750GB SATA hard drive—the largest single mechanism currently available—for around \$335 online (www.seagate.com). That drive not only costs less than one of Apple’s 500GB drives, but also lets you increase your Mac Pro’s total storage to 3TB.

Installing a drive in the Mac Pro is easier than doing so in any other recent Mac. Each hard-drive bay includes a

metal drive carrier. You simply attach the drive to the carrier with four screws and slide the carrier back into place. The drive connects directly to the motherboard, without messy cables. (Just don’t try to slide them in and out when the Mac Pro is turned on! The Mac Pro drives are *not* hot-swappable.)

RAIDing Party Those four drive bays give you more than just raw storage. They can also speed up essential hard-drive tasks. For example, you could use OS X’s Drive Utility to set up your drives in a striped RAID volume (see “RAID: The Penny-Pincher’s Path to Speed”). If you’re considering this setup, note that a startup drive and multiple RAIDs work best.

You could also create a mirrored RAID—in which the same data is stored on two drives—for an up-to-the-minute backup.—JONATHAN SEFF

RAID: THE PENNY-PINCHER’S PATH TO SPEED

Although the standard Mac Pro configuration has just one 250GB hard drive, you can install up to four SATA hard drives in it. One way to increase drive performance is to take multiple drives and create one RAID 0 volume. This type of RAID, also referred to as a striped array, reads and writes data to and from all the drives at the same time, which can really speed things up. To see what kind of performance boost we’d get from this type of setup, we connected two 250GB drives in a RAID 0, installed OS X, and ran some of our standard tests on it. And the results were impressive, to say the least. Adding just one drive (available for \$90 or less online) gave us a lot more bang for our buck than the \$800 processor upgrade available from Apple.

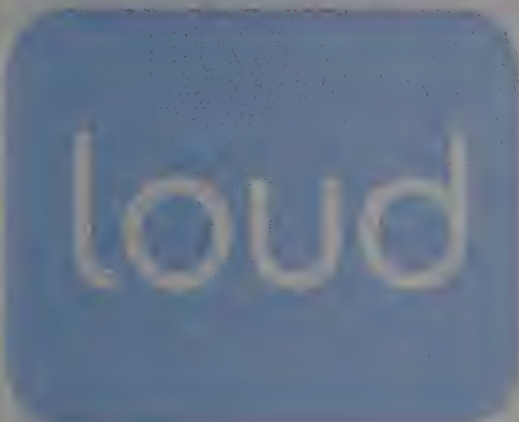
A 2.66GHz Mac Pro with a striped array was just 5 percent slower than a 3GHz Mac Pro without the striped RAID.

Comparing performance on disk-intensive tasks, you’ll see that the 2.66GHz RAID system was 47 percent faster than the standard 2.66GHz system at duplicating a 500MB file, 27 percent faster at unzipping a 1GB folder, and 34 percent faster at importing pictures into Apple’s iPhoto. Some of our tests, such as 3-D gaming, rendering in Maxon’s Cinema 4D XL, and even MP3 encoding in Apple’s iTunes, don’t rely much on hard-disk performance, so we saw no big improvements there. But the gains made in other areas seem well worth the price of setting up a striped RAID volume.—JAMES GALBRAITH

	Speedmark 4.5	Compressor 2.1	Finder	Finder	iPhoto 6.0.4	iTunes 6.0.4
	OVERALL SCORE	MPEG-2 ENCODE	DUPLICATE FILE	EXPAND ZIP ARCHIVE	IMPORT PHOTOS	MP3 ENCODE
Mac Pro/2.66GHz (standard)	299	1:47	12:17	12:44	12:32	12:48
Mac Pro/2.66GHz (RAID)	337	1:38	0:09	12:32	12:21	12:48
	>Better	<Better	<Better	<Better	<Better	<Better

BEST RESULTS IN BOLD.

Speedmark 4.5 scores are relative to those of a 1.25GHz Mac mini, which is assigned a score of 100. Compressor, iPhoto, iTunes, and Finder scores are in minutes:seconds. All systems were running Mac OS X 10.4.7 and had 1GB of RAM. The standard configuration used one 250GB Western Digital WD2500JS Caviar SE drive. The RAID configuration used a striped RAID volume made up of two WD2500JS drives. We used Compressor to encode a 6-minute-and-26-second DV file using the DVD: Fastest Encode 120 minutes - 4:3 setting. We duplicated a 500MB file in the Finder. We expanded a Zip archive of a 1GB folder in the Finder. We imported 100 photos into iPhoto from the hard drive. We converted 45 minutes of AAC audio files to MP3 using iTunes’ High Quality setting. To compare Speedmark 4.5 scores for various Mac systems, visit our Apple Hardware Guide at macworld.com/0815.—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JERRY JUNG



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GRAPHICS:

Something for Everyone

Apple offers three different graphics-card options for the Mac Pro, ranging from a general-purpose card to a high-end option intended for scientists and engineers.

The Mac Pro's default card (which is also available as a \$150 add-on if you want more than one) is the Nvidia GeForce 7300 GT. Intended for the average creative and business user, the GeForce 7300 GT has 256MB of video RAM and two DVI connectors. One of the DVI

connectors is dual-link-capable—meaning that it can support a 30-inch Apple Cinema HD Display. The other DVI port supports monitors as large as Apple's 23-inch Cinema HD Display.

For the Graphics Hog Hard-core gamers and creative pros who work with graphics-

intensive applications will want to consider upgrading to the ATI Radeon X1900 XT. This \$250 upgrade option improves the performance of applications that use OpenGL graphics, such as Apple's Motion, Autodesk's Maya, and other 3-D-modeling apps. It includes 512MB



IT'S IN THE CARDS

The vast majority of applications and tasks will run just fine on the Mac Pro's stock graphics card, the Nvidia GeForce 7300 GT with 256MB of dedicated graphics memory. But if you're really looking for the best graphics performance, Apple offers two higher-end graphics cards as build-to-order options. One, the 512MB ATI Radeon X1900 XT, was not available in time for this story's testing. We were able to get our hands on the Nvidia Quadro FX 4500. It's awfully pricey, but it did indeed give the Mac Pro a major performance boost.

High-end games, such as Quake and Doom, rely less on a system's CPU than on its GPU (graphical processor unit). That reliance becomes apparent when you look at our graphics test results. The 2.66GHz Mac Pro produced just as many frames per second as the stock 3GHz model, because the two machines were using the standard Nvidia GeForce 7300 GT. Installing the optional Nvidia Quadro FX 4500 card boosted frame rates across the board, nearly doubling the number of frames Doom could display per second and increasing frame rates by 79 percent in Quake.

Nanosaur and Unreal Tournament's frame-rate increases were more modest, at least until we cranked up the resolution. While the frame rates of the Nvidia 7300 GT took a major performance hit each time we bumped up the resolution in Unreal Tournament, the Quadro FX 4500's frame rates remained unchanged until we hit 1,920 by 1,200—the native resolution of Apple's 23-inch Cinema HD display.—JAMES GALBRAITH

GRAPHICS—FOUR RESOLUTIONS

	1,024 × 768	1,280 × 1,024	1,600 × 1,200	1,920 × 1,200
	FRAME RATE	FRAME RATE	FRAME RATE	FRAME RATE
Mac Pro 3GHz, Nvidia GeForce 7300 GT (standard)	93.0	71.5	52.0	42.5
Mac Pro 3GHz, Nvidia Quadro FX 4500	107.3	109.2	109.2	92.6
	>Better	>Better	>Better	>Better

BEST RESULTS IN BOLD.

All scores are frames per second. All systems were running Mac OS X 10.4.7 with 1GB of RAM. We used Unreal Tournament 2004's Antalus Botmatch average-frames-per-second score; we ran the tests at four different resolutions at the Maximum setting with both audio and graphics enabled.—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JERRY JUNG

GRAPHICS—FOUR GAMES

	Doom	Nanosaur	Quake	Unreal Tournament 2004
	FRAME RATE	FRAME RATE	FRAME RATE	FRAME RATE
Mac Pro/2.66GHz, Nvidia GeForce 7300 GT (standard)	61.1	84.3	51.6	91.3
Mac Pro/3GHz, Nvidia GeForce 7300 GT (standard)	60.9	88.4	51.8	93.0
Mac Pro/3GHz, Nvidia Quadro FX 4500	118.3	94.6	92.7	107.3
Power Mac G5 Quad/2.5GHz, Nvidia 6600 (standard)	42.5	80.4	38.5	62.2
Power Mac G5 Quad/2.5GHz, Nvidia Quadro FX 4500	53.5	93.1	65.8	61.7
	>Better	>Better	>Better	>Better

BEST RESULTS IN BOLD.

All scores are in minutes:seconds. All systems were running Mac OS X 10.4.7 with 1GB of RAM. We used Unreal Tournament 2004's Antalus Botmatch average-frames-per-second score; we tested at a resolution of 1,024 by 768 pixels at the Maximum setting with both audio and graphics enabled.—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JERRY JUNG

OPTICAL DRIVES:

The Power of Two

of video RAM, and its two dual-link DVI connections allow it to drive two 30-inch Cinema HD Displays at once.

Because the X1900 XT comes with its own built-in fan and ventilation system, it's twice as wide as a standard PCIe (PCI Express) card. The Mac Pro accommodates the card with a special double-wide slot on the motherboard. This keeps the card from blocking a neighboring PCIe slot—useful if you also need to add, say, a video-capture board or faster networking options (such as Apple's Fibre Channel card, for connecting to Apple's Xsan storage system). If you go with the basic graphics card and later decide to upgrade to the Radeon X1900 XT, you can order the card as an upgrade kit from the Apple Store; just keep in mind that you may have to move other cards around to make it fit.

For Scientists The Nvidia Quadro FX 4500 card is the top-of-the-line graphics upgrade option. On paper, its performance is almost the same as the Radeon X1900 XT's. So why would you want to pay \$1,650 for it? This card has a little interface that lets you hook up stereoscopic displays—essentially, high-end (and expensive) 3-D glasses. Some scientific and technical applications rely on such displays—for example, molecular biologists use them to visualize their models in three real dimensions.

The Quadro card features 512MB of video RAM and has two dual-link DVI ports, so you can hook up two 30-inch Cinema HD Displays to it at once. Like the Radeon card, the Quadro FX 4500 is a double-wide. It has a fan that cools its microprocessor, and it discharges hot air through a vent made accessible by Apple's double-wide PCIe slot. But unlike the Radeon, the Quadro FX 4500 isn't available as a separate upgrade kit—you have to order it when you order your Mac Pro.

Divide and Conquer The Mac Pro includes software that dynamically manages the way the PCIe interface divvies

Because the Mac Pro is a professional system, you'd expect it to include the fastest and best optical drive that Apple offers—and it does. That drive just happens to be the same SuperDrive found in the last generation of Power Mac G5s.

What makes the Mac Pro different is that it has room not only for the one SuperDrive that comes standard, but also for a second optional drive. This is the first Mac with a second optical-drive bay since the last Power Mac G4s came out, in 2003.

Double Time The Mac Pro's built-in SuperDrive writes to DVD-R discs at up to 16×, writes to double-layer DVD+R DL discs at up to 6×, and reads DVDs at up to 16×. The drive writes to CD-R and CD-RW discs at 24×, and it reads CDs at 32×.

For an extra \$100, Apple will drop another SuperDrive in your Mac Pro. With two drives, you can burn a backup DVD of your latest Raw images while also ripping a CD, or even burn two copies of an Apple DVD Studio Pro project simultaneously. A two-drive setup is also useful if you need to make a copy of a CD from one drive directly to the other.

up its bandwidth. So if you add new graphics cards—say, multiple GeForce 7300 GT cards to drive additional monitors—the Mac Pro will automatically sense them and allocate its PCIe bandwidth accordingly. It'll even check with you to make sure it's set up optimally for what you'll be doing.

By the way, if you're thinking that you might like to pop one of these cards into

Turning Blu Of course, since the Mac Pro's drive openings are standard 5.25-inch bays, you aren't limited to Apple's offerings. You could, for example, fill the open spot with a high-definition DVD burner such as Pioneer's BDR-101A Blu-ray disc writer (www.pioneerelectronics.com). At

\$1,000—and with similarly priced set-top players just now becoming avail-

able—it may not leap to the top of your shop-

ping list, but you can expect prices to drop dramatically next year. And Roxio, the maker of the popular Toast disc-burning software, has announced that it will be bundling a version of Toast that supports Blu-ray burners with future third-party drives—this combination can turn a Mac Pro into a capable Blu-ray system. Still not sold on Blu-ray? Consider this: in addition to burning movies in a high-definition format, Blu-ray discs can also be used to back up 25GB (on a single-layer disc) or 50GB (on a double-layer disc) of data at a time.—JONATHAN SEFF



your existing Power Mac G5, too bad: Apple says that they're designed exclusively for the Mac Pro and won't work in older machines, not even in Power Mac G5s with PCIe slots.—PETER COHEN

Senior Editor PETER COHEN writes game news and reviews for Macworld.com's Game Room blog. RICK LePAGE is Macworld's editor at large. JONATHAN SEFF is Macworld's senior news editor. JAMES GALBRAITH is Macworld's Lab Director.

REVIEW:

Mac Pro Completes Apple's Intel Lineup

INTEL-BASED TOWERS PROVIDE GREAT PERFORMANCE—IF YOU HAVE THE RIGHT SOFTWARE

By Jason Snell

For Apple, the release of the Mac Pro line of high-end desktop Macs marks the end of the company's transition to Intel processors. The Mac Pro excels in the areas where you'd expect a system targeted at professional markets to do well: computation-intensive, heavily multi-threaded tasks such as 3-D rendering, scientific computing, and pro audio and video production.

That makes these systems just about the best high-performance workstations money can buy—and potentially overkill for people who aren't working in one of those fields. Also, graphics professionals who rely on the applications in Adobe's Creative Suite won't be able to run them natively on the Mac Pro until the spring of 2007, and most Mac software still can't take advantage of the four processor cores that power these machines.

Generation Pro

About the only thing the Mac Pro has in common with its predecessor, the Power

RATING: ★★★★★

PROS: Fast processors; good game frame-rate performance; huge memory capacity; more ports on front and back.

CONS: Pricey, rare RAM format; limited performance gains in software not optimized for multicore systems; non-native software (notably Adobe Creative Suite) must be translated via Rosetta; no sub-\$2,000 entry-level model.

PRICE: \$2,499

COMPANY: Apple Computer, www.apple.com

Mac G5 (★★★★; macworld.com/1004), is its aluminum skin. Inside, it's a different story.

The Power Mac G5's internal design was dictated by the need to cool the superhot G5 processors. As a result, even though the G5's internal volume was much greater than the Power Mac G4's, it had space for only two drives. Thanks to the Mac Pro's dramatically cooler Intel Xeon processors, Apple has been able to reclaim space from the cooling system and add more internal storage.

The Mac Pro can hold four Serial ATA (SATA) drives, up from the G5's maximum of two. It's easy to install a new drive in a Mac Pro: just slide out an empty drive housing, attach a SATA drive to it with the four included screws, and slide the drive housing back into place.

Also harking back to the last generation of Power Mac G4 systems, the Mac Pro's optical-drive bay has room for two full-size optical drives. That choice makes

sense when you consider that we're on the cusp of a whole new generation of optical drives, thanks to the high-capacity HD-DVD and Blu-ray formats. During the introduction of DVD burners, having both a state-of-the-art CD burner and a newfangled DVD drive was useful, and the same will probably hold true during the introduction of these new optical formats.

With the G5, Apple finally gave Mac users easy-to-access USB, FireWire, and headphone ports on the front of the case. Proving that you can never have enough of a good thing, the Mac Pro has two USB 2.0 ports on the front, as well as one FireWire 400 and one FireWire 800. There are three more USB 2.0 and two more FireWire ports (one 400 and one 800) on the back, for a total of five USB 2.0 and four FireWire ports. That cheer you hear is coming from all the Power Mac G5 users who are tired of plugging and unplugging peripherals (and it's most



definitely *not* coming from the makers of USB hubs).

Invaders from Planet Xeon

The Mac Pro's most radical departure from its Power Mac G5 forebears is the chip that powers it. Each Mac Pro uses two dual-core Intel Xeon 5100 series processors, so every Mac Pro has four processor cores. While there was one quad-core Power Mac G5 configuration (there were two dual-core 2.5GHz G5 chips in the \$3,299 model), the Mac Pro's standard configuration has two 2.66GHz Xeon chips; you can also custom order it with 2GHz or 3GHz Xeons. And whatever the chip speed, each Xeon chip also has 4MB of Level 2 cache.

These Xeons use less power and throw off less heat than the G5 chips. The Mac Pro has four fans (down from nine fans and a liquid cooling system in the G5), and they run much quieter than the G5's fans. On a Power Mac G5, kicking a processor-intensive job into high gear usually resulted in an audible crank-up of the computer's fans. The Mac Pro, in contrast, remains remarkably quiet even during heavy use. All the sounds we've noticed emanating from the Mac Pro were from the three SATA drives, not the cooling fans.

When we used an ammeter to test the power usage of the 2.66GHz Mac Pro and the Power Mac G5 Quad (⚡⚡⚡⚡; [macworld.com/1736](#)), we found that the G5 used 92 percent more power when starting up, 88 percent more when running an Unreal Tournament 2004 demo, 62 percent more when idle, and 242 percent more when sleeping.

And of course, the presence of Intel-based processors in the Mac Pro means that it can run Windows, too. At press time, Apple's Boot Camp would run on the Mac Pro—but without several native device drivers. Although you can download many drivers from third-party sources, Apple will likely update Boot Camp to include Mac Pro drivers soon. (At press time, Parallels Desktop (⚡⚡⚡⚡; [macworld.com/1577](#)) had only just added support for the Mac Pro.)

Juggling Cores

When it comes to sheer speed, it's easy to declare that the Mac Pro is the fastest Mac of all time—Apple's standard configuration, the 2.66GHz CPU, scored a remarkable 299 on our Speedmark 4.5 test suite, the second-best score we've seen. The only system to beat it was the 3GHz Mac Pro, with a Speedmark score of 313. But the Intel era of Mac computing has made making blanket speed declarations problematic at best.

First, there's the issue of Rosetta performance. Software that hasn't been recompiled to run natively on Intel-based Macs must run on Apple's Rosetta layer, which dynamically translates PowerPC commands into Intel equivalents. As a result, the Mac Pros are the first high-end Macs to run Adobe Photoshop *slower* than their predecessors—Photoshop (and Adobe's entire Creative Suite) still must use Rosetta to run on Intel Macs. (The 2.66GHz Mac Pro actually ran our suite of Photoshop tasks at almost exactly the same speed as a dual-1.42GHz Power Mac G4.

Professionals whose primary applications run natively on Intel Macs—Quark-



Plenty of Ports The Mac Pro has a total of five USB 2.0 and four FireWire ports on its front and back.

XPress 7 (⚡⚡⚡; [macworld.com/1447](#)), Apple's Final Cut Studio ([macworld.com/0700](#)), and the like—will find that the Mac Pro is faster than the Power Mac at every turn when running native software. But if you want to run Adobe's applications as fast as possible, there's no point in buying a Mac Pro until Adobe's Intel-native software arrives.

The other complication: software must be written to take advantage of multiple processors, processors with multiple cores, or (in the case of the Mac Pro and the Power Mac G5 Quad) both. Programs dedicated to 3-D rendering, professional audio and video editing, and science and

Macworld LAB TEST	Speedmark 4.5	Adobe Photo-	Cinema 4D XL	Compressor	Finder		iMovie 6.0.1	iTunes 6.0.4	Unreal Tournam-	
	OVERALL SCORE	shop CS2	9.5.21	2.1	ZIP ARCHIVE	MP3 ENCODE	AGED EFFECT	MP3 ENCODE	FRAME RATE	MP3 ENCODE
Mac Pro/2.66GHz (standard)	299	1:25	0:28	1:47	2:01	0:38	0:48	91.3		
Mac Pro/2GHz	254	1:50	0:37	1:57	2:32	0:48	0:59	73.4		
Mac Pro/3GHz	313	1:16	0:24	1:42	1:54	0:36	0:45	93.0		
20-Inch iMac Core Duo/2GHz	210	2:31	1:11	3:21	2:34	1:03	1:26	54.1		
Power Mac G4/1.42GHz dual-processor	155	1:24	2:23	4:43	3:16	1:24	1:35	26.5		
Power Mac G5/2.5GHz quad-core	262	0:45	0:30	1:52	2:22	0:39	0:43	62.2		
Power Mac G5/2.7GHz dual-processor	267	0:48	0:52	2:17	2:15	0:43	0:46	44.3		
	>Better	<Better	<Better	<Better	<Better	<Better	<Better	>Better		

BEST RESULTS IN BOLD. REFERENCE SYSTEMS IN ITALICS.

Speedmark 4.5 scores are relative to those of a 1.25GHz Mac mini, which is assigned a score of 100. Adobe Photoshop, Cinema 4D XL, iMovie, iTunes, and Finder scores are in minutes:seconds. All systems were running Mac OS X 10.4.7 and had 1GB of RAM. Processor performance was set to Highest in the Energy Saver preference pane when applicable. The Photoshop Suite test is a set of 14 scripted tasks using a 50MB file. Photoshop's memory was set to 70 percent, and History was set to Minimum. We recorded how long it took to render a scene in Cinema 4D XL. We used Compressor to encode a 6-minute-and-26-second DV file using the DVD: Fastest Encode 120 minutes - 4:3 setting. In iMovie, we applied the Aged video effect to a 1-minute movie. We converted 45 minutes of AAC audio files to MP3 using iTunes' High Quality setting. We used Unreal Tournament 2004's Antalus Botmatch average-frames-per-second score; we tested at a resolution of 1,024 by 768 pixels, at the Maximum setting, and with both audio and graphics enabled. We created a Zip archive in the Finder from a 1GB folder. To compare Speedmark 4.5 scores for various Mac systems, visit our Apple Hardware Guide at [macworld.com/0815](#).—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JERRY JUNG

INSIDE THE MAC PRO

math tend to use every last bit of processor power in every available core, while many others can use only one core at a time. If you rely on a program that's not particularly efficient at using multiple cores, you'll gain much less from the four cores that the Mac Pro provides.

For example, when we used QuickTime Pro to convert a video for use on the iPod, the program took advantage of only one processor core. Even Apple's pro-level Compressor utility was inefficient while compressing video—during a Compressor job, at least half of the Mac Pro's processor power remained idle.

It's not the Mac Pro's fault that there are relatively few programs that can take advantage of its massive processing power. But if you rely mostly on programs that aren't efficient at using multiple processor cores, you'll waste a large chunk of the Mac Pro's processing potential.

New RAM and Decent Video

The Mac Pro's RAM is unlike any memory seen in the Mac market before. The modules are called Fully Buffered DIMMs (or FB-DIMMs); spearheaded by Intel, FB-DIMM technology offers superior performance—at a high price.

Because FB-DIMMs are still new, shopping for them will be difficult, at least in the near future. Apart from Apple, very few companies currently offer Mac Pro-compatible RAM modules. And the modules may be significantly more expensive than more-common RAM types, at least for a while.

If you need huge amounts of RAM, there's good news: you can fill the Mac Pro's eight RAM slots with as much as 16GB of RAM. Installing RAM in the Mac Pro is much easier than installing it in the Power Mac G5. The Mac Pro has two RAM carrier cards, each with four slots. To install RAM, you just slide the card out, insert your new FB-DIMMs, and then slide the card back in.

With its combination of fast processors and a decent video card, the Mac Pro provided the highest game frame rates of any stock Mac system we've tested. In our Unreal Tournament test, the 2.66GHz Mac Pro powered by the standard Nvidia GeForce 7300 GT card with 256MB of RAM—a card not generally appreciated by die-hard gamers—managed to outdo the Power Mac G5 Quad by 47 percent.

You can also upgrade the Mac Pro with one of two other video cards: the ATI Radeon X1900 XT and the Nvidia

Quadro FX 4500. While we weren't able to get the Radeon in time for this review, we did get our hands on the Quadro FX, and its performance was stunning, as expected. (See "It's in the Cards" for details. And we'll post test results for the Radeon on Macworld.com when we get the card.)

Like the Power Mac G5, the Mac Pro uses PCIe (PCI Express) slots. But Apple has made a few improvements this time around. First, the bottom PCIe slot is double-wide, since many high-performance video cards are, shall we say, a bit rotund. If you place a porky video card in a standard slot, it covers up the slot next to it. With the double-wide slot, there's plenty of room.

A Million to One

For the last few years, Apple has offered multiple (usually three) configurations within the Power Mac line. The lowest-priced models tended to use technology held over from the previous generation of Power Macs, often with a slower system bus and lacking certain upgrade options. With the Mac Pro, Apple has done away with these distinctions: although there's one Apple-designated *standard configuration*, you can customize every aspect of the Mac Pro, no matter the processor.

Buyers who want only the lower-cost dual-2GHz processors won't be stuck with previous-generation technology. They'll be free to outfit their systems as they choose, and they'll still be able to take advantage of four processor cores. (However, given the speed difference between a 2GHz Mac Pro and a 2.66GHz Mac Pro, we recommend spending the extra \$300 for the 2.66GHz processors if you can afford it.)

On the other hand, the bargain-priced Power Mac towers did give users an affordable way to buy an expandable, customizable Mac system. The last generation of Power Mac G5s included a \$1,999 low-end model, but you won't find a bare-bones Mac Pro for less than about \$2,124. (That's the 2GHz build-to-order CPU option.) Also, since wireless networking is not a standard part of the Mac Pro, you'll need to spend \$79



Easy Swap Adding or changing hard drives in the Mac Pro is easy—it's virtually plug-and-play.

extra if you want to add AirPort Extreme and Bluetooth to *any* model.

Macworld's Buying Advice

The Mac Pro gives professional Mac users more processor power, storage options, and external ports than the last Power Mac line. The Mac Pro is a better value, too: the standard Mac Pro configuration, which runs at 2.66GHz, costs \$800 less than the Power Mac G5 Quad did when it was released—yet the Mac Pro is generally faster than the G5 Quad. The 3GHz Mac Pro is the fastest Mac we've tested—however, since the 3GHz processors cost an additional \$800 and provide a proportionately slight speed increase, they're a good bargain for only voraciously speed-hungry pros.

But these new systems aren't for everyone. If you rely on applications that do not yet run natively on Intel Macs, the Mac Pro systems shouldn't replace your Power Mac G5 just yet. And if the software you use can't use multiple processor cores efficiently, you won't be able to take full advantage of the Mac Pro's impressive power.

There's a fairly wide price gap between Apple's Mac Pro and its iMac desktop line. It's unclear whether Apple has any interest in producing a moderately priced system for power users that's less expensive than the Mac Pro but more flexible than the iMac or the Mac mini. For now, if you don't run high-end professional applications and don't *truly* need a huge amount of internal storage or access to PCIe slots (for the impressive video-card options, among other things), you might find that one of the remarkably powerful iMac Core 2 Duo models is a much better value. □

JASON SNELL is Macworld's editorial director.

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Macworld's Guide to **HEALTHY** **COMPUTING**

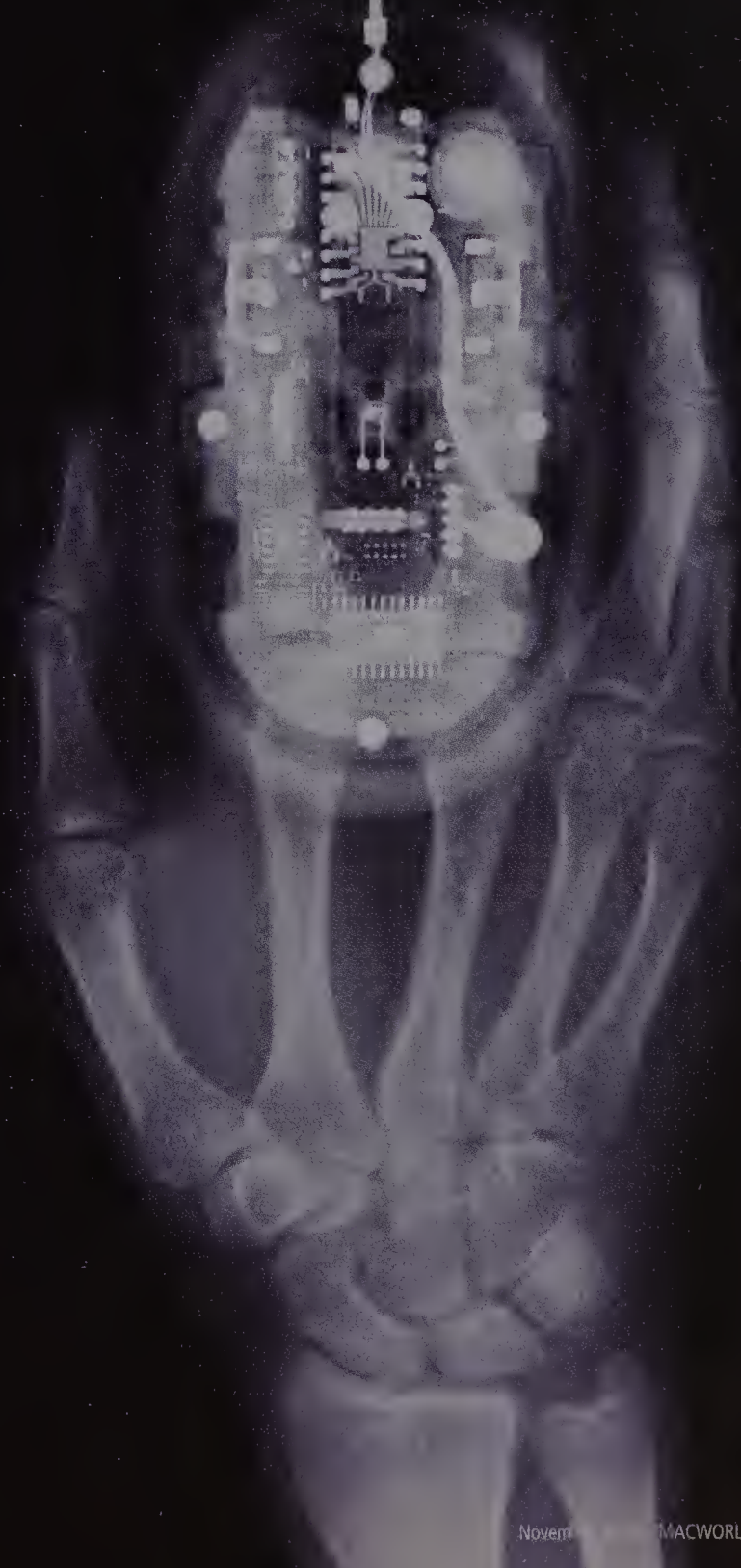
Simple Strategies for Staying Pain-Free While on the Job

DAVID POGUE'S SORENESS CAME ON gradually, and was often most pronounced after long sessions at his Mac. It started with some aching in his wrists. After a while, the pain he felt after typing became so severe that he couldn't button his shirt without help. When the *New York Times* columnist and Broadway pianist was diagnosed with tendinitis, a type of repetitive strain injury (RSI) in which the tendons become inflamed, he turned to speech-recognition software—a solution that he says helped save his career.

It's hard to say for sure what role computers play in injuries such as these—even experts disagree on the subject. The issue becomes trickier when you consider that some RSI-like symptoms aren't caused by computers, and certain complaints, like eyestrain and headaches, don't qualify as RSI. (For more on the different types of computer-related injuries, see "The 411 on RSIs and CRDs.") Still, the relationship between computers and pain, numbness, and other debilitating symptoms is too persuasive to discount.

Whether you use your computer for work or entertainment, you're at risk for developing RSI. But you don't have to give up your Mac to stay fit. Read on, and I'll show you the best ways to arrange your workspace, as well as how to use software and hardware to help avoid problems. (See "Seeking Help," for advice on what to do if you think you have a computer-related injury.)

By Franklin N. Tessler, MD



REARRANGE YOUR WORKSPACE

ONE EASY WAY to lessen your risk of injury is to get the right chair (or adjust the one you have) and set up your hardware correctly. But while most ergonomists concur that certain arrangements are particularly hazardous, they don't always agree on what's best. That makes it difficult to suggest a perfect setup, so consider these recommendations as guidelines. As you read, refer to the illustration on page 67.

→ CUSTOMIZE YOUR CHAIR

Your chair determines the posture of your back, arms, and legs, so finding one that fits your body size is essential. Office chairs run the gamut, from economical models with a few adjustable features to thousand-dollar seats that sport more levers and buttons than a 747's cockpit. Here are some things to pay attention to, whether you're buying a chair or customizing your current seat:

A Back Support The seat's back should be tall enough to support at least your lower and middle back, especially in the lumbar area (the lower part that curves inward). Also, make sure it tilts forward and backward. Adjust the back so that the angle between your trunk and legs is a bit more than 90 degrees.

B Good Armrests Choose a chair with padded armrests. You should be able to rest your arms comfortably, without having to extend them too far or tuck them tightly against your body. Many chairs sport armrests that you can raise or lower so that you don't end up shrugging or stooping your shoulders. If you can't find a comfortable armrest position, remove them altogether or find another chair.

C Solid Cushioning The chair should have a padded cushion that's long enough from front to back to support your buttocks and thighs without touching the back of your knees. Look for a cushion that's

THE 411 ON RSIs AND CRDs

→ Here are some of the terms commonly referenced in discussions about computer-related stress injuries.

Carpal Tunnel Syndrome: a condition that's caused by pressure on a nerve in the wrist.

CRD (Computer-Related Disorder): any type of computer-induced illness.

RSI (Repetitive Strain Injury): the most common type of CRD, it occurs when small repetitive motions (typing, mousing, and so on) injure tendons and other body parts.

Tendons: bands of tissue that connect bones to muscles.

Ulnar Deviation: stressful outward angling of the hands caused by conventional keyboards.

smoothly rounded in front to avoid putting pressure on the backs of your thighs.

D Height Adjustment Adjust the chair so that your forearms and wrists are about desktop height when your elbows are at 90 degrees. Your feet should be flat on the floor—if they dangle, use a footrest.

E Rollability Chairs that are wobbly or don't roll smoothly force you to bend or twist to reach your equipment. Look for a chair with five legs, and make sure that it rolls easily. If you work in a carpeted area, get a floor pad that won't buckle as you move.

→ ADJUST INPUT DEVICES

RSI problems are often compounded by poor hardware design, which forces you to use awkward positions and excessive force while typing or using your mouse. (For more on ergonomically designed input devices, see "Replace Your Equipment.") Fortunately, your setup can help minimize the risk of injury.

F Trays and Wrist Rests Adjustable keyboard trays help on several levels. They keep your keyboard in a flat or slightly backward-tilted position, which is safer. They also help you tweak the height of your input devices so you don't have to angle your wrists to reach them. Tray or no tray, try to avoid propping up your keyboard on its retractable feet. Although that makes it easier to see the keys, it also forces you to bend your wrists.

Also, beware of wrist rests: they help keep your wrists straight, but they put pressure on the nerves and tendons at the back of your wrist. Look for a wrist rest that's smoothly contoured and padded, and only use it during rest periods, not when you're typing.

G Typing Technique Pounding on keys increases the impact on your fingers. Instead, try to keep your hands in a relaxed, natural position as you type, with

ENVIRONMENT COUNTS

→ Mundane tasks such as answering the phone, jotting notes, and reading documents can take their toll if you're not careful. So pay attention to the following:

Phone Positioning When you're on the phone, make sure you don't twist your body or cradle the handset between your head and shoulder. If you need to have both hands free while chatting, buy a headset and microphone.

Lighting Make sure that your envi-

ronment is bright enough so you can see without straining, but not so intense that it overwhelms your computer display. Direct lighting is great for illuminating your keyboard and paperwork, but avoid lights that shine directly into your eyes or cause screen glare.

Temperature Most people are comfortable at about 68 degrees, but tastes vary. Try to avoid working directly under an air conditioning vent or other source of blowing air.

WORK SMART Creating a healthy, ergonomically correct workspace doesn't have to be expensive. Often, simply adjusting the equipment you already have is enough. You shouldn't have to reach out or crane your neck to perform repetitive tasks.



your fingers arched smoothly, floating over the keys. If your keyboard requires that you press the keys extra hard to elicit a response, try a different one.

H Mouse Position Situate the mouse as close to the keyboard as possible, so you don't have to extend your arm and shoulder as you move between the two. If you use a keyboard tray, it should be large enough to accommodate both a keyboard and a mouse.

→ MOVE YOUR MONITOR

The position of your LCD or CRT is crucial, as poorly placed monitors tend to put extra strain on your eyes and upper spine. Here's what to consider:

I Height and Angle Conventional wisdom says that the top of the monitor should be slightly below eye level, so you don't have to glance up or crane

your neck. While this advice works well for most people, some experts recommend an even lower position, so you're actually looking down at the monitor. As for tilt, make sure the monitor is angled backward slightly so that the top of the screen is farther from your eyes.

Distance It's less stressful for your eyes to focus on a distant visual target, so try to place your monitor 18 to 24 inches away, farther if there's room. (If necessary, enlarge the on-screen text size to compensate.) If you wear glasses and spend more than a couple of hours a day at your Mac, consider getting lenses with a midrange focal zone that's tailored for computer users—ask your optometrist about them.

Body Positioning Your body, monitor, and keyboard should form a straight line—you shouldn't have to rotate your trunk or neck to type or to read your screen.

REDUCE REPETITIVE MOTION

A PROPER WORKSPACE setup is important, but it can only help so much. To further lessen your risk of RSI, try cutting back on the amount of typing and mousing you do. Mac OS X, along with many popular applications, features built-in tools that can abbreviate tasks. Or you can invest in some third-party add-ons to help you. But remember: A shortcut should not be more harmful than the action it replaces. For example, stretching your fingers to press three keys at the same time may put more stress on your fingers and tendons than using the mouse.

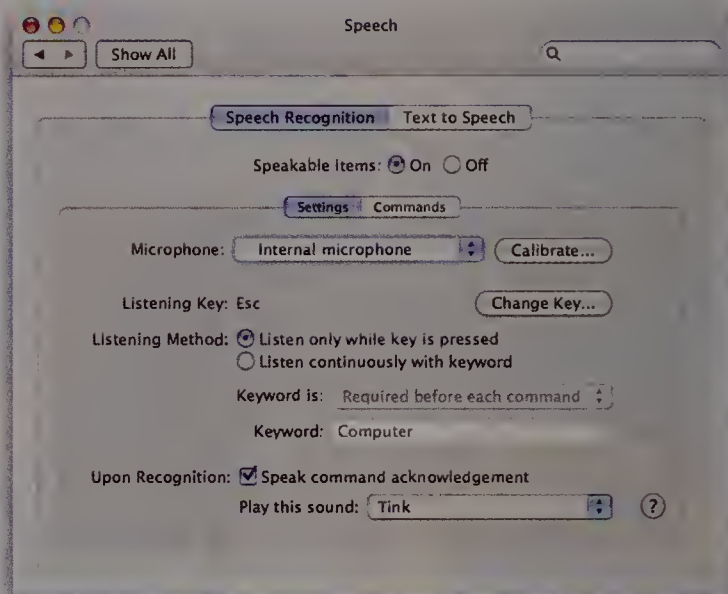
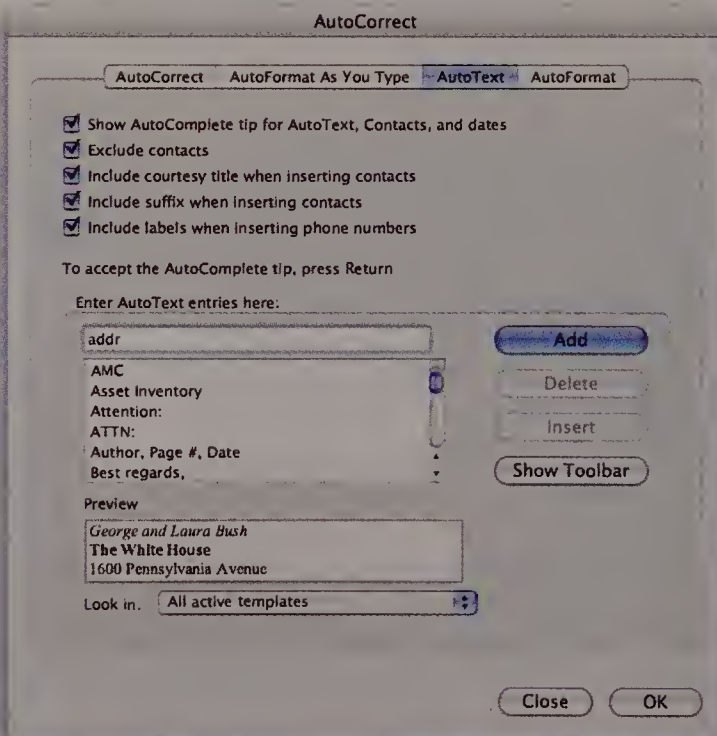
→ AUTOMATE COMMON TASKS

Replacing repetitive multistep procedures with automated sequences can be a huge benefit, and many applications come with such features built in. For instance, Adobe Photoshop's actions let you trigger certain tasks, such as resizing, rotating, and saving an image, with a single mouse click. Photoshop comes with several actions (File: Automate: Batch), and hundreds more are available for free from Adobe's Studio Exchange (share.studio.adobe.com).

Don't use Photoshop? Automator, a utility that ships with Mac OS X 10.4, lets you program complex operations called *workflows* by dragging actions into a flowchart-like window. For instance, you can create workflows to mail selected items in the Finder or resize a group of images. To find out more about how to set up workflows, see "Make Automator Work for You" at macworld.com/1560.

But while Automator's workflows are limited to stringing together predefined steps (such as retrieving the contents of a folder), Startly Technologies' \$80 QuickKeys X3 (◆◆◆◆; macworld.com/0778) offers more flexibility: it can automate just about any action, including typing, mouse clicks, and system operations. To use QuickKeys, you have to break up the job into a series of distinct steps (click on a button, wait until a window disappears, and so on), but the effort pays off if you tend to repeat the same sequences often.

Word Fixer Using Microsoft Word's AutoText feature, you can create abbreviations for longer passages of text.



Watch Your Speech In the Speech preference pane, you can instruct your Mac to listen for commands continuously or only when you press a modifier key.

→ TRY SHORTCUTS

One simple way to reduce typing is to use built-in shortcuts for common commands. To find the shortcuts available for an application, use the Help menu and do a search for *shortcuts*. Many applications, including Microsoft Word, also let you customize your own keyboard shortcuts. And if you're using Mac OS X 10.3 or later, you can set keyboard shortcuts for any menu command in most applications (see "Save Time with Shortcuts" at macworld.com/0337).

You can also reduce typing by using text expanders, which let you enter blocks of text with a few keystrokes. This capability is built into Microsoft Word via the AutoText feature (see "Word Fixer"). For instance, here's how to make Word fill in your address: Type the address exactly as you want it to appear and highlight it. Go to Tools: AutoCorrect, and select the AutoText tab. Type *addr* in the Enter AutoText Entries Here field, and click on the Add button. Now whenever you type *addr*, Word will display a pop-up showing the entire address; press return to enter it.

Even if you don't use Word, you can add this capability to other applications. Third-party text expanders like Riccardo Ettore's \$27 TypeIt4Me (www.typeit4me.com) and SmileOnMyMac's \$30 TextExpander (◆◆◆◆; macworld.com/1672) let you set up and use abbreviations for oft-used phrases in any application.

→ USE YOUR VOICE

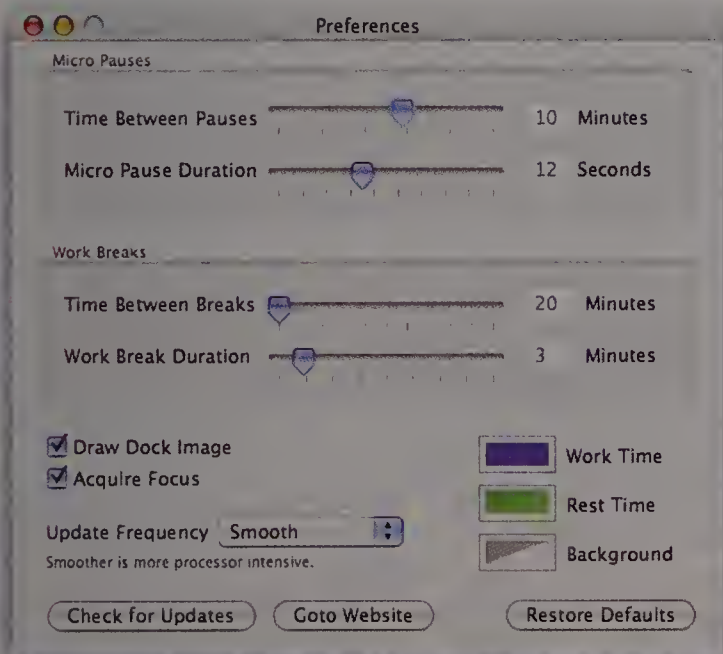
Another way to reduce the amount of typing you do is through speech-recognition software. MacSpeech's \$149 iListen (www.macspeech.com) comes with a USB headset and microphone, and it transcribes your voice on-the-fly in any OS X application (see "Listen Up"). iListen is worth considering if you're comfortable dictating long passages without interrupting yourself to correct mistakes. Although iListen works out of the box, you'll get more-accurate results if you take the several hours required to train the program. A high-quality mike and a quiet environment also help.

If you don't want to go as far as having your computer transcribe your documents, you can still voice-control your Mac, using OS X's built-in speech recognition. For example, you can command your Mac to hide the current application, switch to another program, or create a new folder—all without touching the mouse. Use the Speech preference pane to specify which voice command sets to activate (see "Watch Your Speech"). For an example of how to set up speech recognition in Tiger, see "Control Exposé via Voice" at macworld.com/1561.

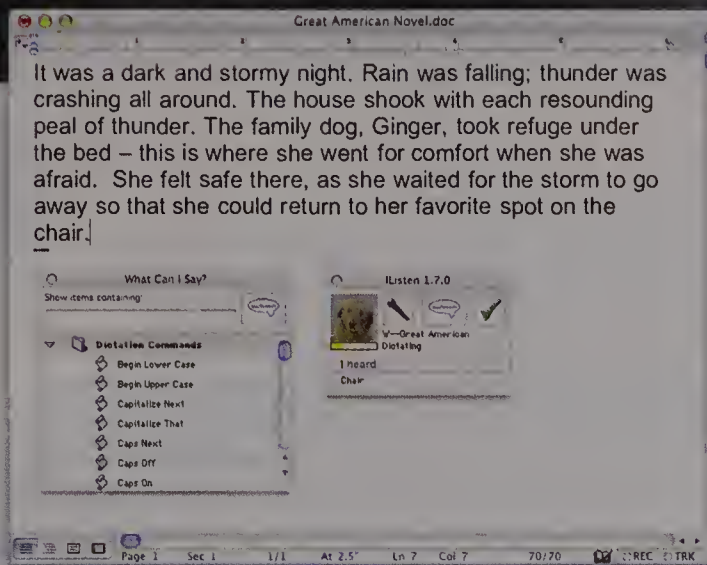
→ TAKE FREQUENT BREAKS

Generally, you should stop what you're doing a few times an hour, relax, take a few deep breaths, and close your eyes or look off into the distance. Better yet, get up and walk around to stretch.

If you can't remember to put your work aside on your own, programs such as PublicSpace.net's \$25 MacBreakZ (www.publicspace.net/MacBreakZ) or Niche Software's \$74 Workspace (www.workspace.com) pop up reminders and show you exercises that you can perform



Make or Break AntiRSI's Preferences pane lets you tweak settings for major work breaks and short pauses.



Listen Up The Feedback window in iListen shows you what the application is hearing.

at your desk. You can adjust the length of the pauses and the interval between breaks; you can even make the reminder window take over your screen, so you're forced to stop working.

Although it doesn't include exercise tips, a free program called AntiRSI (macworld.com/1562) also helps you take periodic breaks (see "Make or Break"). All three applications recommend longer breathers, as well as microbreaks that last less than a minute.

SEEKING HELP

➔ Although there's no surefire way to tell if you have a stress-related injury, be wary of any pain, numbness, weakness, stiffness, tingling, or other unusual sensation in your neck, back, shoulders, arms, or hands, especially after a stint at your Mac. Symptoms may be delayed or intermittent, so don't discount them just because they crop up hours or days later. If you suspect you have a problem, here are some steps you can take:

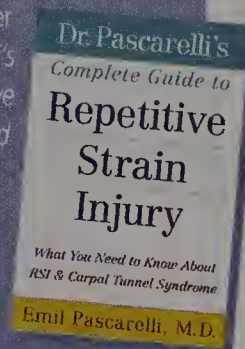
Seek Attention Resist the urge to "work through" the pain—you may end up aggravating the injury. If you think that your symptoms may be related to computer use at work, visit your company's employee health service to put your complaint on the record—in many cases, employers will pay for new equipment, and even medical care. If you're not sure where to go, ask someone in the human resources department.

Read about It There's a wealth of advice and self-help resources in print. *Repetitive Strain Injury: A Computer User's Guide* (Wiley, 1994), by experts Dr. Emil Pascarelli and Deborah Quilter, is a classic

introduction to RSI. Another good choice is Dr. Pascarelli's *Complete Guide to Repetitive Strain Injury: What You Need to Know about RSI and Carpal Tunnel Syndrome* (Wiley, 2004).

Go Online The Web is a good source for information, as long as you cross-check recommendations before following them. The Typing Injury FAQ site (www.tifaq.com) features a comprehensive collection of articles and links about preventing and treating RSIs. Carnegie Mellon University (macworld.com/1563) and UCLA (www.ergonomics.ucla.edu) offer helpful tips on office ergonomics and how to set up workstations.

See a Doctor The list of health-care professionals who deal with CRDs includes physicians, chiropractors, and physical therapists (or physiotherapists). Just make sure that person is experienced in diagnosing and treating CRDs. Ask coworkers or friends for referrals, or consult an RSI support group in your area for advice. (The Typing Injury FAQ site includes listings of self-help groups sorted by location.)



REPLACE YOUR EQUIPMENT

INCREASED AWARENESS OF RSI over the past couple of decades has spawned a flood of so-called ergonomic devices that claim to reduce the risk of injury. Unfortunately, determining whether a product lives up to its claims is difficult without actually using it. Like gloves, keyboards and pointing devices are personal—one size doesn't fit all. Before buying any device, make sure that you can return it after a trial period.

→ SWITCH YOUR KEYBOARD

To reach the keys on a conventional keyboard, you have to angle your hands outward and bend your wrists. But this position puts stress on nerves, muscles, and tendons. Ergonomic keyboards are designed to diminish these problems.

The simplest models, like Microsoft's \$100 Wireless Laser Desktop (www.microsoft.com), turn the right and left sides of the keyboard outward so that your arms, wrists, and hands form a straight line as you type. Note, though, that since there's no ideal angle for everyone, this keyboard may not work for everyone.

To help accommodate different body types, some ergonomic keyboards are split down the middle,

allowing you to adjust the angle between the two halves. The

\$159 Kinesis Maxim (www.kinesis-ergo.com) goes

one step further: not

only can you adjust the angle

between the two halves, but you can

also tilt the center point of

the keyboard upward like a tent so that your wrists and hands assume a more relaxed, vertical position.

If an angled or split keyboard doesn't do the trick, the \$497 DataHand Personal Edition (www.datahand.com) lets you type without moving your hands. Each palm rests on a contoured pad while fingertips fit into receptacles equipped with small switches that you press to enter characters. To type the letter H, move your right index finger slightly to the left; enter an A by pressing down with your left pinkie. But remember: The more unconventional the keyboard, the greater your typing speed will suffer, at least initially.

→ UPGRADE YOUR MOUSE

As with keyboards, you must consider both the type and feel (or grip) of a mouse before you buy it. Clenching a mouse too tightly can strain your muscles, especially if the device is too small for your hand. Luckily, mice now come in a wide range of sizes, so you should be able to find one that fits your hand comfortably. Make sure that the mouse buttons don't require too much or too little force, and that they provide a comfortable resting place for your fingers while you work.

If conventional mice aren't doing the trick, there are

several unique ones avail-

able. Evoluent's Verti-

calMouse 2 (ⓈⓈⓈ; macworld.com/0355)

lets you hold your

hand in a vertical

position (think hand-

shake), which is less

stressful because it keeps your fore-

arm from twisting. It comes in two

versions: one for right-handed users

(\$75) and one for left-handers (\$105).

If you have arm or shoulder symptoms, trackballs are a good choice since they demand less motion than mice. Models like Kensington's \$100 Expert Mouse (www.kensington.com) feature a trackball at the top. Others, like Logitech's \$30 TrackMan Wheel (www.logitech.com), have a side-mounted ball that you roll with your thumb, so your hand hardly has to move. One nice bonus is that many trackballs (and mice) have programmable buttons. Customize them to perform common functions such as control-clicking, launching your browser, or even activating Automator workflows or QuickKeys sequences.

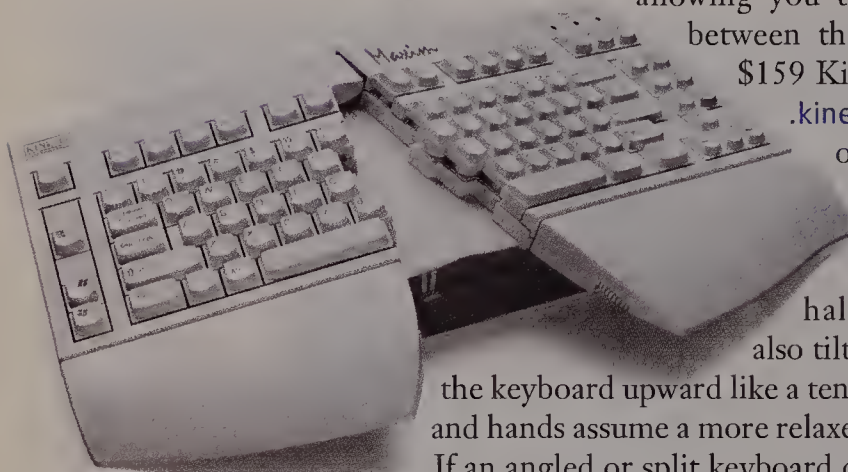
→ TRY ASSISTIVE TECHNOLOGY

Special input devices designed for users with physical impairments are another alternative for RSI sufferers. If you find it difficult to click or type, you can perform clicks and key presses with your feet through P.I. Engineering's \$120 X-keys Foot Pedal (www.xkeys.com). And Origin Instruments' \$995 Head-Mouse Extreme (www.orin.com/access) allows you to control the cursor by moving your head.

→ THE BOTTOM LINE

Even if you think that the problem of computer-induced injuries is overblown, it makes sense to minimize your risk. Simple things, such as tweaking your workspace or investing in a more-comfortable input device, can go a long way. With your health and livelihood at stake, that's good preventive medicine. □

DR. FRANKLIN N. TESSLER is a radiologist in Birmingham, Alabama. He writes about ergonomics regularly for *Macworld*.



Kinesis Maxim



Evoluent
VerticalMouse 2



Value and performance –
it's a photo finish.

Feature-packed units in a small sleek design

Thanks to Brother's new affordable low-profile line of all-in-one color solutions, you can now have color printing, copying, scanning, and faxing, plus digital media compatibility in a unit that fits practically anywhere.

With fast color and black/white inkjet print speeds, all the units come with such productivity features as faxing and auto document feeders that are usually not found on competitive models. To meet various customer needs, certain models include built-in Ethernet networking compatibility, a wireless (802.11b/g) network interface and even a 5.8 GHz cordless handset!

All low-profile models produce sharp, brilliant color output due to print resolutions of up to 6000 x 1200 dpi coupled with their ability to print ink droplets as small as 1.5 picoliters. When used with Brother's Innobella™ Ink Cartridges and Photo Papers, you can accurately reproduce beautiful, radiant color images while simultaneously enhancing image permanence and longevity. A standard photo bypass tray makes it easier to print your photos and regular output without changing paper each time. And on some models, a color LCD allows you to view and print your photos with or without a PC or Mac®.

Small wonder Brother Multi-Function Center® models are picture perfect... in more ways than one.

MFC-240C

Color Inkjet All-in-One

- 25 ppm Black / 20 ppm Color
- 10 Page Auto Document feeder



MFC-440CN

All features of the MFC-240C plus:

- 2.0" Flip-up Color LCD
- Photo Bypass Tray
- Built-in Network Interface

A VARIETY OF MODELS AVAILABLE AT: Office Depot, OfficeMax, Staples, Fry's Electronics, Costco.com, Brandsmart, PC Richard, MicroCenter, BJ's Wholesale Club, J&R Computer World, CDW, Insight, Techdepot.com, PC Connection, PC Mall, Zones, Quill, PC Nation, TigerDirect.com, Gateway.com, Provantage, Amazon.com, Buy.com, and other fine resellers.

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*Resolution is listed as vertical by horizontal. For more information please visit our Web site at www.brother.com

Get More from Mail

Apple's Mail is not only easy to use, but also much more powerful than it may appear. If you feel that you're not making the most of Mail 2.0 (bundled with Mac OS X 10.4), try using these tips to dig into some of its interesting and less obvious features.

Supercharge Your Searches

When you're trying to find a certain message in your vast and unwieldy e-mail archives, typing a word or two into Mail's Spotlight search field doesn't always get the job done. Get the specificity you need by using Boolean expressions.

To indicate an AND search in Mail—in other words, both search terms must be present in the message—use an ampersand (&). For example, you might type `jack & jill` in Mail's Spotlight field to find messages containing both *jack* and *jill*. To specify an OR search—meaning that either, but not necessarily both, of the terms must be present—use a pipe character (|). For example, type `jack | jill` to find either of those names in a message. To specify a NOT search, use an exclamation point (!). For example, type `jack & (jill | hill) ! water` to find messages containing *jack* and either *jill* or *hill* but not *water* (see “Find It”). The parentheses group terms together so that a single AND, OR, or NOT applies to all of them. Be sure to include spaces between the terms whenever you type your search because if you don't, the search (for example, `jack|jill`) may not work.

Boolean expressions work in Mail only if you select the Entire Message option. (After you type a search term in the application's Spotlight field, you'll see the Entire Message button above the message list.) You can't do Boolean searches on just the Subject or From field, for instance.

Check Gmail or AOL Mail

If you have an e-mail account with Google's Gmail service (www.gmail.com) or America Online (www.aol.com), you don't have to bother with a Web inter-

face or AOL application. Check your messages with Mail instead. Go to Mail: Preferences, click on the Accounts tab, and use the following settings:

Gmail In Mail's Accounts tab, create a new POP account by clicking on the plus-sign (+) button and selecting POP from the Account Type menu. Fill out the other fields here and click on Continue. In the window that appears, enter `pop.gmail.com` in the Incoming Mail Server field. In the User Name field, type your full e-mail address (`user_name@gmail.com`). Then enter your usual Gmail password in the Password field and click on Continue.

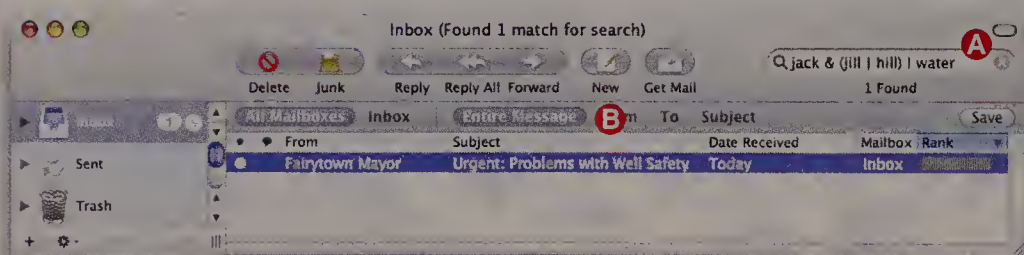
In the next window, enter `smtp.gmail.com` in the Outgoing Mail Server field, specify your full Gmail address as the User Name, and type your password. Select the Use Authentication option and click on Continue. In the confirmation screen, click on Continue again and then click on Done. If you're a Gmail pack rat, brace yourself—a lot of messages will download the first time you access them this way.

AOL In Mail's Accounts tab, create a new IMAP account by clicking on the plus-sign button and selecting IMAP from the Account Type menu. Fill in the rest of the fields and click on Continue. In the Incoming Mail Server field, type `imap.aol.com`. In the User Name field, just type the portion of your AOL address that comes *before* the @ sign. Fill in your password and click on Continue. For the outgoing mail server, type `smtp.aol.com`. As before, enter your user name (without `@aol.com`) and password. Select the Use Authentication option and click on Continue. In the confirmation screen, click on Continue again and then click on Done.

Juggle Aliases in Mail

If you're a .Mac member, you can add up to five e-mail *aliases* to your account. These extra addresses all deliver mail to your regular inbox. Their purpose is to protect your main address from spam. Use an alias to sign up for online newsletters, for example, or to post on message boards. If the alias becomes flooded with junk mail, delete it and create a new one.

It's easy to use your aliases in Mail. Choose Mail: Preferences, click on the Accounts button, select your .Mac account, and click on Edit Email Aliases. Your



Find It When you're looking for a specific message in your vast e-mail archives, narrow the search by using Boolean expressions in Mail's Spotlight field **A**. This works only if you select the Entire Message option **B**.

Web browser will open to your .Mac account. After you've set up one or more aliases here, they'll appear automatically in the Account pop-up menu in Mail's message-composition windows. To send a message using the alias as the From address, choose the alias from this menu.

Send It from the Right Address

Do you have a non-.Mac e-mail account that has more than one address associated with it? For example, the messages for you@example.com and webmaster@example.com might both come to the same inbox. In Mail, you don't have to set up multiple accounts for each of these addresses to choose one as the From address on outgoing mail.

Instead, choose Mail: Preferences, click on the Accounts tab, and select the account. Type the multiple addresses in the Email Address field, separated by commas. Now, before sending a message, you can choose the From address you want to use from the pop-up Account menu.

Help the Junk Mail Filter

Mail's Junk Mail Filter is reasonably good and learns from its mistakes, as long as you conscientiously correct them by clicking on the Junk or Not Junk button. But some preference settings can throw it off, resulting in extra spam in your inbox.

Check for a common offender by going to Mail: Preferences and clicking on the Junk Mail tab. If the Message Is Addressed Using My Full Name option is selected, Mail gives a pass to any message that uses your full name in the To field. Unfortunately, it's all too easy for spammers to learn your full name, so I recommend making sure this option is *not* selected. If you'd like to use it anyway, at least make sure Mail actually knows what your full name is. Go to Mail: Preferences, click on Accounts, and fill in the Full Name field.

<tc-comments@tidbit...	Order Notice: Take Control...	March
<tc-comments@tidbit...	Order Notice: Take Control...	March
<tc-comments@tidbit...	Order Notice: Take Control...	March
<tc-comments@tidbit...	Order Notice: Take Control...	March
<tc-comments@tidbit...	Order Notice: Take Control...	March
<tc-comments@tidbit...	Order Notice: Take Control...	April
<tc-comments@tidbit...	Order Notice: Take Control...	April
<tc-comments@tidbit...	Order Notice: Take Control...	April
<tc-comments@tidbit...	Order Notice: Take Control...	April
<tc-comments@tidbit...	Order Notice: Take Control...	April
<tc-comments@tidbit...	Order Notice: Take Control...	April
<tc-comments@tidbit...	Order Notice: Take Control...	April
<tc-comments@tidbit...	Order Notice: Take Control...	April
<tc-comments@tidbit...	Order Notice: Take Control...	May
<tc-comments@tidbit...	Order Notice: Take Control...	May
<tc-comments@tidbit...	Order Notice: Take Control...	May
<tc-comments@tidbit...	Order Notice: Take Control...	May
<tc-comments@tidbit...	Order Notice: Take Control...	May
<tc-comments@tidbit...	Order Notice: Take Control...	May
<tc-comments@tidbit...	Order Notice: Take Control...	May

Pick Any Number How many messages do you have selected at the moment? Just drag any of the selected messages slightly (without leaving the current pane) and a badge appears on the pointer with the total count.

Two Cell Phone Helpers

OS X's Address Book can make life easier for Bluetooth cell phone users. Here are two helpful hints:

1. Sync without Syncing Even if you don't have syncing set up (or don't want to wait for a full sync), it's easy to send your Bluetooth cell phone a single address from Address Book. Select the contact's name in the Name list and choose Card: Send This Card. In the dialog box that appears, select your cell phone and click on Select.

2. Get More Options When you have a Bluetooth cell phone paired with your Mac, caller ID information for incoming calls automatically appears on the Mac's screen. But if you also have Address Book open in the background, and you click on the Bluetooth icon in its toolbar (it turns blue when selected), incoming calls produce a dialog box with even more options. Click on Log Call (before clicking on anything else) to add a note to that contact's Address Book record stating when the call occurred. Click on Answer to accept the call. Click on Voice Mail to send the caller directly to your phone's voice-mail system, or SMS Reply to reply to the caller with a text message.



Count Your Messages

Mail always displays the number of messages in the currently selected mailboxes at the top of the viewer window. But what if you want to know how many messages you've selected? Easy: after you've selected the messages, drag them slightly, as though you were going to move them. A red badge with a number appears next to your cursor (see "Pick Any Number"). Release the mouse button before leaving the message list and you'll know the count, but the messages won't actually move.

Use E-mail to Send Reminders

Sometimes you might prefer to send an e-mail message automatically—without having to launch Mail yourself. With a little tinkering in iCal, you can do just that. When you create a new event in Apple's iCal, you can choose to receive a reminder message by e-mail. But if you'd rather send a reminder to someone else—the forgetful colleague who's supposed to attend the meeting with you, for instance—download Chris J. Shull's free iCalMail (macworld.com/1609).

iCalMail's setup application creates a new iCal calendar for you. After assigning an event to that calendar, choose Open File from the Alarm pop-up menu. Then, from the Other pop-up menu beneath it, navigate to the iCalMail application. Now add one or more e-mail addresses to the Attendees list. At the selected time, iCalMail uses Mail to send out reminder messages. The subject is the event name, and the text is the contents of the Notes field. You can even send an attachment by entering its full file path in the Location field. For example, type ~/Documents/mydocument.doc if you want to attach the Word file mydocument.doc, located inside the *your user folder*/Documents folder. □

JOE KISSELL is the senior editor of TidBits (www.tidbits.com) and the author of *Take Control of Apple Mail* (Peachpit, 2005).

Network to New Music

You've probably heard of social-networking Web sites such as Facebook, Flickr, and MySpace.com—online communities that let you establish a linked group of friends and contacts. But social networking is not merely a way to meet new people. It's also a good way to discover new music to replace the aging tracks on your iPod.



Want more tips on digital music?

Pick up a copy of the *Macworld iPod and iTunes Superguide*, an 88-page book available in print (\$24.99 [shipping included]) or as a downloadable PDF (\$9.95). Order yours at macworld.com/1371.

Software for Music Lovers

Although iTunes can tell you what other people have purchased and what music is popular right now, there are also Web sites and applications that take things a step further, helping you find a like-minded community simply by playing your favorite tracks in iTunes.

MyStrands If you're interested in discovering music via the power of social networks and the hive mind, the free MyStrands service is a great starting point (www.mystrands.com). MyStrands tracks information about the music you listen to, builds unique online charts, and has several interesting community features.

MyStrands scans your iTunes library and compares it with the MyStrands database. As you play songs in iTunes, MyStrands runs in a separate window, displaying track information and a Recommendations list of similar songs you might enjoy (recommendations are based on several aspects of the entire community's listening habits). There's also a field for entering tags—user-contributed keywords that describe the song. MyStrands downloads community tags from its database for each track, and you can add your own (see “Leave Your Mark”). Tags can be anything—not only simple genre keywords, such as *jazz* and *folk*, but also keywords that express how the music makes you feel, what it reminds you of, or anything else that you think categorizes it.

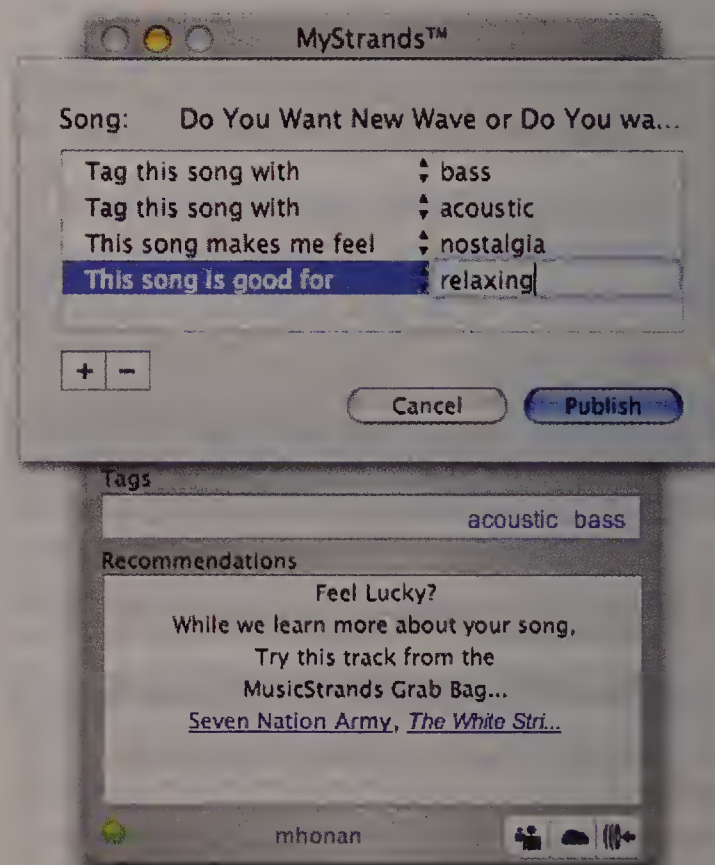
MyStrands builds a database of all your tags, which you can view by clicking on the Tag Cloud icon in the lower right-hand corner of the MyStrands window. The Tag Cloud window can display all your tags or all the community tags for songs in your library. Click on any of the tags, and MyStrands will list all the tracks in your library that share it. You can then click on the Create Playlist In iTunes button, and MyStrands will make a new iTunes playlist with all those songs. Even if you've never tagged a track, you can use MyStrands' community tags to generate playlists.

The program also helps you find compatible friends. On the MyStrands Web site, you can click on the Discover Members link to find people with musical tastes similar to yours. The site will even generate a list of potential buddies—the list is based on what you're lis-

tening to right now, what you've listened to this week or month, or your all-time listening habits, and it includes percentage ratings that show how likely a match MyStrands thinks each person is. Visit the site to browse user-created playlists and more.

Last.fm Designed to help you find fresh tunes, Last.fm (last.fm) combines a social-networking Web site with Mac software. To get started, you create a free account and download the Last.fm application—either the full app or the (currently unsupported) iScrobbler iTunes plug-in. Like MyStrands, the full Last.fm application lets you tag tracks and view community tags for songs in your library. However, its strongest features are its charting and networking options.

Launch the Last.fm app, and as you play songs in iTunes, Last.fm submits track data to your user page on its Web site; iScrobbler lives in OS X's menu bar and submits track data in the background. (A handful continues



Leave Your Mark In MyStrands, you can use tags to categorize your tracks in all sorts of ways.



iLuv™



Bluetooth Hi-Fi Audio System for Your iPod® - i199



Bluetooth Transmitter



Bluetooth Receiver



All Bluetooth Mobilphone



Bluetooth(Wireless) Multimedia Technology

iLuv patented BluePin Technology is the latest solution allowing you to either send or receive your favorite music between Bluetooth enabled devices wirelessly. This is the only device that allows the user to select to send or receive your tunes between Bluetooth enabled devices. Whether your tunes are on your cell phone, your computer or any other Bluetooth device enhance your listening experience thru the i199 with jAura Speaker Technology and BluePin Multimedia technology.

* Patent Pending

jAura

Yes, It's Impressive...

jAura™ technology is similarly incorporated into our AM/FM and iPod stereo system. By matching speaker characteristics with enclosure acoustics and amplifier design, the result is truly impressive sound performance in portable form. Regardless of your musical tastes, you'll experience distortion-free sound at any listening level. Hear it to believe it.

* Patent Pending

MP3 CD
Playback



Noise-Canceling Bluetooth Headphones

i903



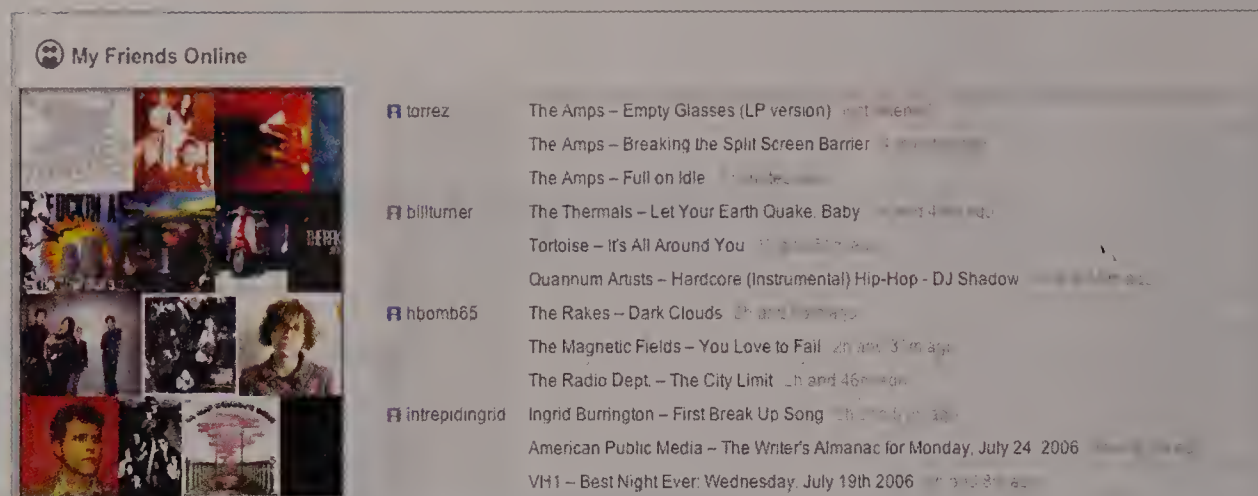
*Audio Transmitter
included

Bluetooth Stereo Ear Clips

i202



*Audio Transmitter
included



With a Little Help

See what your friends have been listening to lately, and click on song titles to preview them online using Last.fm.

of third-party applications, most notably Menuet [specere.net], can also submit song data to Last.fm.) The Last.fm site maintains a database of every submitted track, and it records the information in charts on your user page. You can browse your charts by artist, album, and track to get a better idea of your weekly, monthly, and overall listening habits. Last.fm even gives you the code for publishing your charts on your blog (MyStrands has a similar feature).

As your user profile grows, Last.fm's database becomes increasingly valuable. After analyzing your listening habits and comparing them with those of other users, the site will put a Neighbours list—people with similar listening habits—on your user page.

Your neighbours' charts are an excellent resource—just as you can browse your own charts over time, you can browse theirs, too. Checking out their top tracks will help you find new releases that might interest you. Find an intriguing artist or track? Click on the track name, and if the track is in Last.fm's database, it will play in your Web browser.

Neighbour Radio is another great way to discover new tunes. You can access this feature in the Last.fm application itself, or by going to your Last.fm user page and clicking on the Neighbour Radio link. This will play a stream of music that your neighbours have been listening to. As you listen, these songs are added to your charts so you can find them later. The player also has a heart-shaped Love button you can click on to add a track to your Recently Loved list.

When you find a neighbour who really shares your tastes, you can click on an icon on his or her user page to add that neighbour to your Friends list (see "With a Little Help"). You can also add people you already know to your Friends list—this is especially useful when you're just starting to establish a pool of recommended music (to kick things off, feel free to add me as your friend [www.last.fm/user/emptyage]).

Music in the Web World

Although software that works with iTunes is a great way to find new music, you don't always have to download a program—you can turn to the Web as well.

Del.icio.us The popular social bookmarking site del.icio.us (del.icio.us) lets anyone upload a link and

tag it with keywords. Since del.icio.us users update the site millions of times a day, searching its tags can help you find the absolute newest music on the Web. To access all its features, start by signing up for a free account.

You can view URLs associated with any tag on del.icio.us by entering a keyword in its search box. You can also enter a search string directly in your browser; for example, if you wanted to see all the

URLs tagged with the keyword *jazz*, you'd enter <http://del.icio.us/tag/jazz>—the site would return everything users had tagged with that keyword, with the newest items presented first. To further refine a search, you can combine keywords by putting a plus sign (+) between them. So, for example, you could enter <http://del.icio.us/tag/jazz+MP3> to find all the URLs tagged with both *jazz* and *MP3*. If you're unsure how to start, try searching for one of your favorite bands—the site will not only return a list of links with the band's name, but also display a Common Tags box, which you can use as a jumping-off point, on the side of the page.

If there are certain tags or tag sets that you want to check daily, you can subscribe to them in two ways. The first is by clicking on the RSS link at the bottom of the del.icio.us page to send newly tagged items directly to your RSS reader of choice. The second is by clicking on the Settings link in the top right-hand corner of the page, and then clicking on the Subscriptions link on the following page (this works only if you register). In the resulting page, enter the appropriate tag or tags (connected with a plus sign if there is more than one) in the Tag field; then click on the Subscribe button. New URLs will now show up in your del.icio.us inbox on the site.

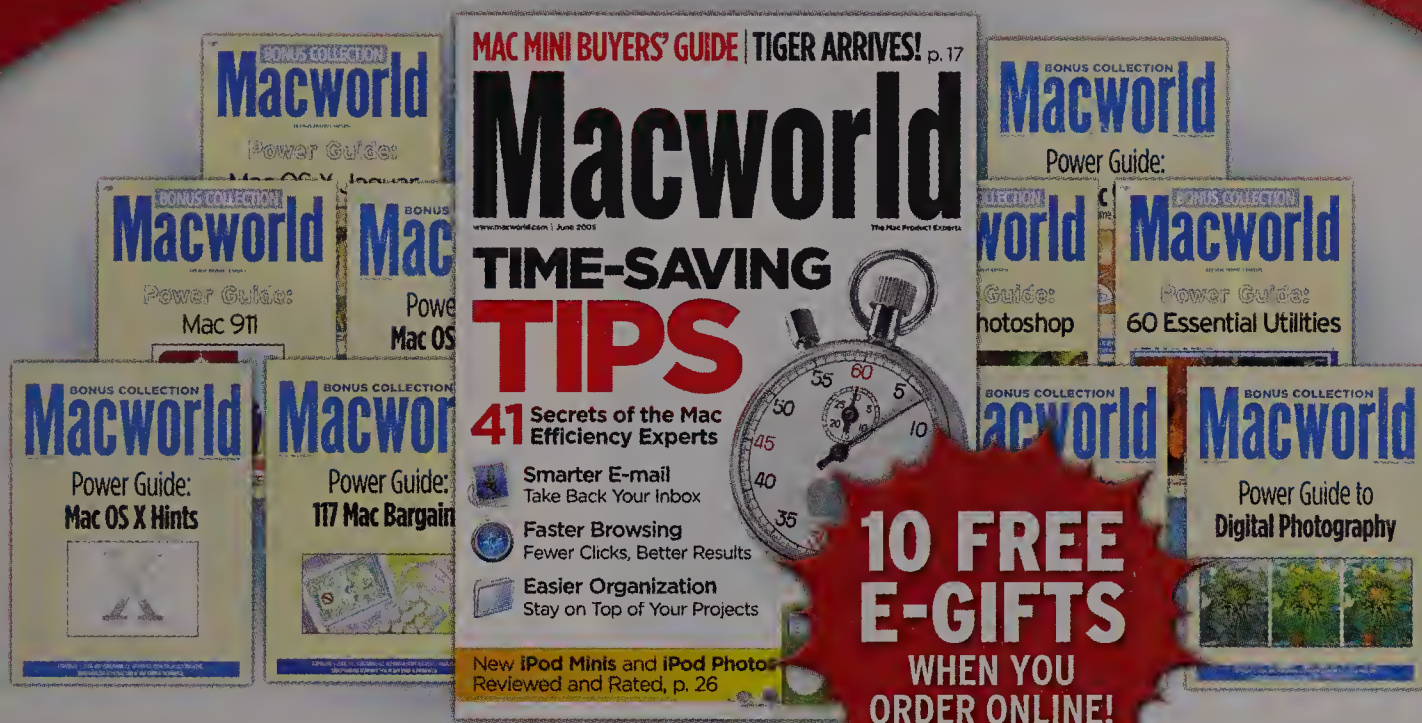
The del.icio.us site lets you see not only what people are linking to, but also who's doing the linking. Notice that a lot of your favorite links come from one person? You can use either of the aforementioned methods to subscribe to a particular user's del.icio.us links. Many MP3 bloggers maintain a page of del.icio.us links that point out new bands and singles.

MP3 Blogs Speaking of MP3 bloggers, music Weblogs are another way to find new music by harnessing other people's tastes. A good place to start is The Hype Machine (hype.non-standard.net), an audio-blog aggregator that tracks uploads across a wide range of music blogs. It can also help you find music blogs suited to your individual tastes. □

MATHEW HONAN writes about technology for the *National Journal's Technology Daily* and *Wired*. He keeps a Mac-oriented Weblog at mac.honan.net.

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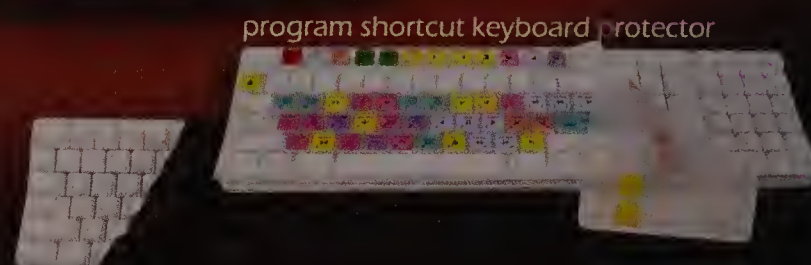
fashionable protection cases



A Leading Producer of Silicone Protectors
Trend-setting Fashionable Cases, Excellent Protection & Fit
Functionality with Elegance, Extraordinary Durability, Technology with Inspiration

Dress it, Express yourself.

Macworld
AWARDS 2006
Nomination



zCover products are available at www.zcover.com

www.zCover.com

Back Up Photos on the Road

There's no point in lugging along a laptop on your vacation just so you can archive or organize your digital pictures. A laptop not only adds weight and heft, but is also vulnerable to theft and damage. Luckily, you have other options. Our recommendations will help ensure that all your photos come home safely with you.

Stock Up on Memory Cards

Prices of memory cards have dropped so much recently that it's feasible to buy as many cards as you need. Since last year, for instance, the price of a 1GB CompactFlash (CF) or Secure Digital (SD) card has fallen from well over \$50 to between \$10 and \$30 with rebates. Dealram (dealnews.com) frequently points to sales and specials.

So how many cards do you need? If you anticipate shooting 500 photographs with a 6-megapixel camera, you'll need more than 1GB of storage (each picture is roughly 2MB). For flexibility, that would mean bringing at least two 1GB cards.

You'll want even more storage space if you plan to shoot video with your digital camera too. Every minute of footage can fill 100MB or more of storage. To save space, you may want to edit video on the camera to remove the less interesting parts. This kind of feature is available on newer Canon, Olympus, and other cameras. It's no iMovie, but it typically allows you to trim a series of frames from the beginning or end of a clip.

Create Backups

There's a downside to relying solely on media cards for storage: if a problem develops with your card, you could lose all your photos. Flash-memory cards are susceptible to accidental erasure and even corruption. They're also small (especially SD cards), and therefore easy to misplace. That's why it's a good idea to back up images. Here are some options:

Transfer to an iPod Using the \$29 Apple iPod Camera Connector, you can transfer images from a digital camera to a photo-capable iPod (except the iPod nano, alas) via your camera's USB cable (see "Image Go-Between"). You can even preview images and view slide shows on either the iPod or a TV (using yet another optional adapter, the \$99 iPod AV Connection Kit). Before you choose this route, make sure your camera is on Apple's list of supported devices (macworld.com/1650). (At press time, there was no word as to whether the new iPod nanos would support this feature).

Buy a Photo Storage Drive Another option is a dedicated photo storage device, such as SmartDisk's 40GB FlashTrax XT (\$400; www.smartdisk.com), Epson's 80GB P-4000 (\$700; www.epson.com), or

Digital Foci's Media Buddy (40GB, \$189; 60GB, \$219; 80GB, \$249; www.digitalfoci.com). All three devices include memory-card slots for transferring photos and can run on batteries. The FlashTrax and P-4000 also have LCDs for previewing photos.

Use an Online Service Between the large number of Internet cafés and the increasing number of hotels that offer connected computers for guest use, transferring pictures to a photo- and video-hosting service has become a realistic option. These services offer several advantages. First, because you're storing photos on a server in another location, you can't lose them. Also, friends and family can view your pictures while you're still enjoying your adventure.

Choosing a service comes down to whether you want to store and share images at their highest quality. Most services impose data-transfer or -storage limits; some even downsample images after you upload them. We like Yahoo's Flickr (www.flickr.com) best. For \$25 a year, you can upload full-resolution images, up to 10MB each in size, and Flickr won't downsample them. You can also upload 2GB per month, with no storage limits.

If you're looking for straight-up file storage and you don't care whether others can see your photos, try a network storage service such as Box.net (1GB, free; 5GB, \$5 a month) or Xdrive.com (5GB, \$10 a month).

If you plan on using an online service, we recommend packing a USB 2.0 memory-card reader. Or, if your camera uses SD cards, consider SanDisk's continues

Image Go-Between

Apple's iPod Camera Connector lets you move pictures from your digital camera to your iPod.



Master Your Memory Card

At some point, you'll have to erase pictures from your memory card—but what's the best way? Here are the different delete commands and advice on when to use each.

Erase All This command deletes all images from the file index, much like moving a document into the Trash and emptying it.

Format This erases the directory and storage structure markers, effectively eliminating recovery. It's a good idea to use Format instead of Erase All periodically to guard against directory corruption.

Low-Level Format Necessary for recalcitrant memory cards, this command writes zeros onto every bit of the card and creates a map of unusable bits. There's no way to recover images after performing a low-level format—not without involving the NSA.

Ultra II SD Plus cards (www.sandisk.com). These clever devices fold in half so you can plug them straight into a USB slot, no adapter required. Prices range from \$55 for 512MB to \$135 for 2GB.

A few tips on using Internet cafés: most places charge by time usage—and some, such as those in small towns, might not have a broadband connection. So think about limiting the amount of data you transfer. One option is to set your camera so it's not shooting at the highest resolution. Or cull any unwanted photos before uploading your images.

Also, when using public computers, take precautions against possible keystroke-logging software or other spyware. Before you leave for your trip, change the passwords for those accounts to something you don't use on any other accounts. Also, when logging out of an online photo service, empty the browser's cache and then quit the browser program.

Use Your Cell Phone Depending on your location and hardware, you may be able to upload images to a cell phone. For instance, by inserting your camera's SD card into the Palm Treo's card slot, you can e-mail photos to yourself or to a special Flickr address that adds them to your online album. Just beware of international roaming rates for data. They can be crazy—sometimes \$20

per megabyte and up—so call your carrier and get the details. Cingular, for instance, offers an affordable global plan that includes 100MB of data transfer.

Burn and Mail If transferring photos over the Internet isn't practical, consider using optical media to archive images. Even if you're not sure you'll use them, it can't hurt to pack some blank CDs or DVDs.

Of course, this option requires a computer with a built-in disc burner. Many Internet cafés have systems with CD and DVD burners, and practically anyone you visit who has a computer should have at least a CD burner. Another option is to visit a photo store or self-serve photo kiosk. Besides printing out your pictures, many of them can burn images to disc.

If you plan on erasing your memory card, burn two copies. Keep one with you and send the other home or to a photo service such as Shutterfly (www.shutterfly.com), which will transfer your images to its servers at no charge.

If Disaster Strikes

So what happens if the data on your card becomes corrupted or you inadvertently press Erase All on your camera? Don't panic. Memory-card recovery software such as DataRescue's \$29 PhotoRescue (macworld.com/1651) can reconstruct lost bits by reading the card's data directly rather than relying on its file catalog, which is the part that's probably corrupted. (See "Master Your Memory Card" for more on the different types of erase functions.) If you plan to use PhotoRescue when you get home, don't shoot any more pictures on the troubled card until you've run the software (see macworld.com/1652 for details on using PhotoRescue). □

JEFF CARLSON is the managing editor of TidBits (www.tidbits.com) and the author of *iMovie HD 6 and iDVD 6 for Mac OS X: Visual QuickStart Guide* (Peachpit Press, 2006).
GLENN FLEISHMAN writes for the *Economist*, the *New York Times*, and *Popular Science*.



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Two in One SanDisk's Ultra II SD Plus cards fold back to reveal a USB connector.

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Design for Any Browser

Designing Web sites that look good in every browser can be heart-breaking work. Your carefully crafted site may look great in Mozilla Firefox and Apple Safari, and then become a jumbled mess in Microsoft Internet Explorer 6, the default browser for roughly 75 percent of Web users. But how do you test pages in a browser that doesn't run in OS X?

Most Mac designers solve this problem by setting up an old PC next to their Mac—swiveling between the two to check changes. Other people rely on online services that create screenshots of a page using a variety of browsers—a process that can be unbearably slow. But now, thanks to Apple's Intel Macs, Mac Web designers can have the best of all worlds—creating sites in OS X *and* testing them in Windows without so much as turning their heads. In fact, switching between the two involves just pressing the keys.

What You'll Need

In addition to having an Intel Mac, you'll need some special software to set up your test system.

Parallels Desktop Similar to Apple's Boot Camp software, Parallels Desktop (🔗; macworld.com/1577) lets you run multiple operating systems at once without significantly slowing down either system. But unlike Boot Camp, Parallels Desktop doesn't require you to reboot your computer every time you want to switch operating systems. This \$80 application can run Windows side by side with OS X, making it easy to jump between designing and testing your Web pages. You can download a free 15-day trial version if you want to test it out.

Heart of a Virtual Machine Parallels Desktop's Property Page controls the settings for the Virtual Machine that runs Windows.

Microsoft Windows If you don't already have a copy of Windows, you'll need to buy one. You can use any flavor of Windows XP that you like. Windows XP Home is \$199 and is perfect for testing your Web designs (www.microsoft.com).

VirtueDesktops This free software (virtuedesktops.info) lets you run both Windows and OS X in full-screen mode—switching back and forth with a simple keyboard command.

Step 1: Set Up Parallels Desktop

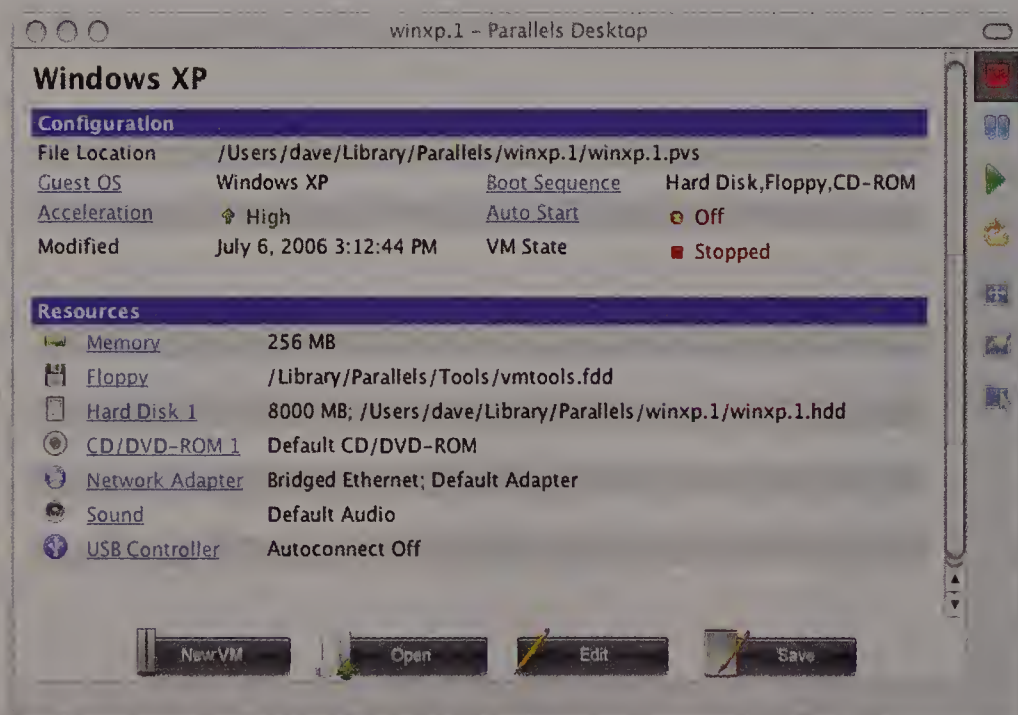
To install Windows on your Intel Mac, you must first create a virtual machine (VM). For this, you'll need Parallels Desktop. Once you've installed Parallels, double-click on the application (/Applications/Parallels/) to launch it. In the dialog box that appears, click on the New VM button to open the setup wizard. Follow the steps—select Windows from the Guest OS Type menu and Windows XP from the Guest OS Version menu—until the process is complete. When you're done, you should see the VM Property Page (see “Heart of a Virtual Machine”).

Step 2: Install Windows

Insert the Windows Installer CD. Return to Parallels' VM Property Page and click on the green Power On arrow to begin the Windows installation process. You'll be asked about your settings and preferences; you can stick to the default options by pressing the return key. After this process, which takes about half an hour, you'll have a fully functional Windows machine running inside a floating Parallels Desktop window on your Mac (see “A Window for Windows”).

Step 3: Install Parallels Tools

If you click inside the Windows workspace, it captures your cursor, preventing you from clicking outside that window. You can release the cursor by pressing control-option. To prevent this from happening at all, install Parallels Tools, included with Parallels Desktop. Parallels Tools makes it easy to display Windows at full-screen resolution and share files between the Mac and Windows.



From the Parallels menu bar on your Mac, choose VM: Install Parallels Tools. In the Parallels Tools setup wizard, click on Next until you get to the Setup Type pane. Select Complete, click on the Next button, and then click on Install. When you're done, restart Windows.

Step 4: Share Files

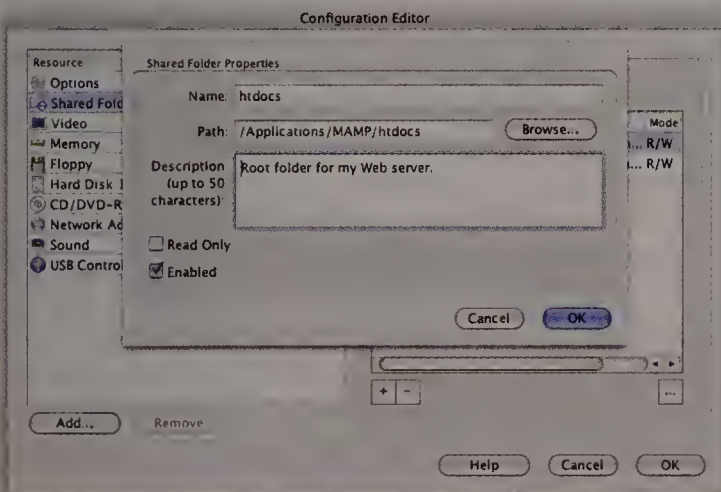
To view your Web pages in Windows, you'll need to give Internet Explorer access to them. Parallels lets you define one or more folders on your Mac as *shared*. Windows can view, add, and edit files in any shared folder. This means that if you define the folder holding your Web pages as shared, you can open those pages using Internet Explorer in Windows.

First shut down Windows if it's running (click on the Start button in the lower left corner of the Windows desktop and choose Turn Off Computer, then click on the red Power Off button in the Parallels window). Then return to Parallels' VM Property Page window and click on the Edit button at the bottom of the window. This opens the Configuration Editor. Click on Shared Folders in the Resource column, and then click on the plus-sign (+) button in the right pane (see "Simple Sharing"). Name the folder, click on the Browse button, and then locate the folder on your hard drive that holds your Web pages. Click on OK to close the Configuration Editor. In the VM Property Page, click on the Save button, and then click on the green arrow to launch Windows.

You should now see a Parallels Shared Folders shortcut on your Windows desktop. Double-click on this icon to see any shared folders you defined in Parallels.

Step 5: Create Virtual Desktops

At this point, Windows appears inside a small Parallels Desktop window—which isn't an ideal setup if you're trying to get a sense of how your Web page will look to an Internet Explorer user. You can run Windows in full-screen mode by choosing View: Fullscreen. You won't see any of the Parallels software menus or windows, nor will you see OS X's desktop. It'll look just



Simple Sharing Parallels' Shared Folders feature gives a local copy of Windows access to folders on a Mac.



like you're working on a Windows machine. The problem is that anytime you want to return to your Mac and make a quick change to your Web page, you have to press option-return and leave full-screen mode. All that clicking can become painfully tedious.

The solution is to install VirtueDesktops. This application lets you create multiple virtual screens—one for your Mac system and one for a full-screen view of Windows—and then switch between them with a simple keyboard command. It's like having multiple monitors, though only one is visible at a time.

Once you've downloaded VirtueDesktops, put it in your Applications folder. When you double-click on the VirtueDesktops application, an icon (resembling two overlapping rectangles) appears in the Mac's upper right menu bar. Click on it and choose Preferences from the pull-down menu. In the Preferences window, select the Launch Virtue On Login option. To see the name of the desktop you're currently viewing in the Mac's menu bar, select the Display Desktop Name option, and then close the window.

Click on the VirtueDesktops menu once more and choose Inspection: Desktops. On the left side of the window you should see a list of four virtual desktops (if you don't, try restarting). Double-click on the one labeled Mail and rename it Windows.

If Windows is currently running, shut it down. Quit Parallels Desktop. Press control-shift-right arrow to switch to the Windows virtual desktop. Launch Parallels Desktop and start Windows by clicking on the green Power On button. Finally, switch to full-screen mode by selecting View: Fullscreen. To return to your Mac desktop, simply press control-shift-left arrow. You can move back and forth this way as often as you like without ever leaving full-screen mode. □

A Window for Windows Parallels Desktop can run Windows XP in full-screen mode or inside a floating window on your Mac desktop (pictured here).

DAVID SAWYER McFARLAND is the author of *CSS: The Missing Manual* (O'Reilly, 2006) and *Dreamweaver 8: The Missing Manual* (O'Reilly, 2005).

Your Apps in Your Pocket

Imagine carrying the applications you use all the time—a Web browser, an e-mail client, a word processor, and even an image editor—in your pocket, ready to run on any Mac (and in some cases, Windows PCs), with all your preferences and plug-ins just the way you want them. Welcome to the world of portable applications.

Portable apps are written to run from any storage device (such as an external hard drive). The idea is that you can plug that device into any computer (in a library, an Internet café, or a branch office, for instance) and run your apps without making any changes to the host computer, and without accidentally leaving any of your personal data behind. Such apps are an increasingly viable option for anyone who wants to do some computing on the road without lugging along a laptop.

Go for a Drive

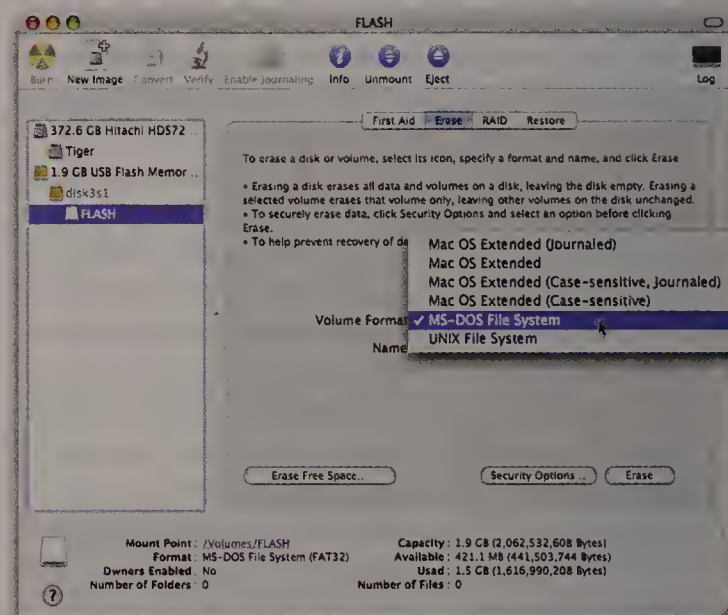
While you can install portable apps on any kind of drive (even an iPod or your Mac's main startup disk), they're most useful when you run them from a USB flash drive. Also known as thumb drives, these drives are the most popular way to carry around portable applications. They come in every conceivable shape, size, and capacity.

When you're shopping for one to store and run portable apps, make sure the drive is labeled "Hi-Speed" so that you get real USB 2.0 throughput.

To protect your privacy you should look for one with built-in security. The FingerGear Bio-USB Flash Drive (macworld.com/1616), and the BioStik Index Security BioStik (macworld.com/1618) drives protect you with fingerprint recognition, while the Lexar JumpDrive Secure and Secure II (macworld.com/1619) use a cross-platform encryption utility.

At the moment, 1GB and 2GB drives are the best values; higher-capacity drives tend to be disproportionately expensive. But pricing changes frequently, so do your own gigabyte-per-dollar calculations to find the best deal.

Before you install any software on your flash drive, double-check its format, and reformat it if necessary. To do so, open Disk Utility, select the drive's volume in the list on the left, and click on the Erase tab (see "Pick a Format"). There, you'll see a Volume Format pop-up menu. If you want to use your flash drive on both Windows PCs and Macs, choose MS-DOS File System (also known as the FAT32 file system) from that menu. If you're sure you'll use the drive only with Macs, choose Mac OS



Pick a Format Choose a format for your flash drive from Disk Utility's Volume Format pop-up menu.

Extended (the HFS+ file system) instead. Ignore the Journaled and Case-Sensitive options.

Find and Download the Right Apps

The next step is to get the portable applications you need (see "Portable Apps for OS X"). When selecting applications, keep in mind that they come in different flavors.

While many portable OS X apps are now Universal—so they'll run natively on either PowerPC or Intel processors—even those that have been compiled only for PowerPC can use Rosetta to run acceptably on Intel Macs. A few portable applications (notably, portable versions of Mozilla Firefox and Thunderbird) are available in cross-platform versions, meaning they run on both OS X and Windows.

Your choice of portable applications is limited only by the apps that are available and the size of your flash drive. I was able to store every application listed in "Portable Apps for OS X" on a single 2GB flash drive with almost 500MB left. If I were constrained for space, though, I'd install Thunderbird (because I always prefer using a real e-mail client to a Web mail interface), followed by Firefox (because I like to have my own bookmarks and plug-ins).

After that, your choices will depend on the tools you'll need on the road.

Set Up Your Portable Apps

Installing portable apps usually means just copying them to the drive. But in some cases, a bit of configuration will make your life a bit easier.

Take, for example, Portable Firefox. When you download it, you get a disk image (see "Moving Images"). Drag the Portable Firefox OS X folder to your flash drive to copy it.

Next, look in your *user folder/Library/Application Support/Firefox/Profiles*. In most cases, you'll see a subfolder there, named something like 9nz8qfy6.default. Copy this folder to your desktop, and give it the name *profile*. Then go to your flash drive, find and delete the Firefox profile folder there (/Portable Firefox OSX/app), and replace it with the profile folder you copied to the desktop. (If you use Safari on your Mac, you can import your Safari settings into the regular [not portable] version of Firefox and then, from there, into Portable Firefox.)

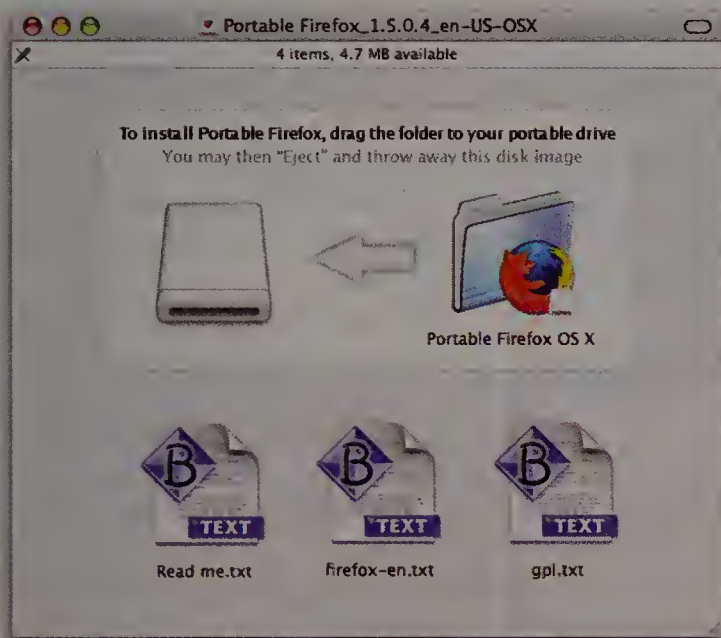
Once that's all done, you can launch your new portable browser by opening the flash drive in the Finder and double-clicking on the Open Portable Firefox OSX helper application.

The Portable-App Experience

For the most part, using a portable application is exactly the same as using its conventional counterpart. However, you will have to adapt to some differences.

First, portable applications are typically slower to load than conventional apps—sometimes much slower. It can take several minutes for Portable Firefox to open the first time you use it after plugging in your flash drive (subsequent loads should be quicker).

Second, portable applications also impose some restrictions you may not expect. The portable



Moving Images Drag the Portable Firefox OS X folder from the downloaded disk image onto your flash drive to install Portable Firefox.

PORTABLE APPS FOR OS X

Here are the portable applications currently available for OS X. Except where otherwise noted, all can be downloaded from www.freemug.org/portableapps.

APPLICATION TYPE	APPLICATION	PLATFORM(S)	SPACE REQUIRED (IN MB)
Audio editor	Audacity	PowerPC	12
Calendar and to-do list	Sunbird	PowerPC	27
Drawing program	Inkscape ^A	Universal	40
E-mail client	Thunderbird	PowerPC	55
E-mail client	Thunderbird (cross-platform) ^B	Universal and Windows	42
FTP client	Cyberduck	Universal	24
HTML editor	Nvu	PowerPC	35
Image editor	GIMP ^A	Universal	165
Instant-messaging client	Adium	Universal	24
IRC client	Newspeak	Universal	2
IRC client	X-Chat	PowerPC	5
IRC client	X-Chat	Intel	5
Media player	VLC	PowerPC	37
Media player	VLC	Intel	37
Productivity suite	OpenOffice.org ^A	PowerPC	430
Productivity suite	OpenOffice.org ^{A,C}	Intel	430
RSS news reader	Feed	PowerPC	10
RSS news reader	RSSOwl	Universal	7
To-do list	Check Off	Universal	2
Web browser	Camino	Universal	45
Web browser	Firefox	Universal	48
Web browser	Firefox (cross-platform) ^B	PowerPC ^D and Windows	42
Word processor	AbiWord	PowerPC	35

^A Requires X11 (available on the Tiger installation DVD). ^B Available from www.theplaceforitall.com. ^C Still being tested. ^D Choose Help: Check For Updates to update to the Universal version.

Thunderbird stores all your incoming mail on the flash drive (as it should), but if you get a lot of messages or large attachments, that space will fill up quickly. Also, a few portable applications, including GIMP, Inkscape, and OpenOffice.org, require Apple's X11 software, which may or may not be installed on the Mac you're using temporarily. You could carry around a copy of the X11 installer, but that'll take up additional space.

Tips and Recommendations

Now that you've got your portable apps downloaded and installed, you're ready to use them. You can connect your USB flash drive either directly to a computer or to a USB hub. If you connect it to a USB 1.1 hub, you'll get much slower speeds. Also, many flash drives require too much power to work with bus-powered hubs (such as those built into many USB keyboards). For best results, always plug your drive directly into the computer.

You *can* store all your e-mail, passwords, and work documents on a flash drive. But because such drives are so small, they're easily lost or stolen. If your flash drive doesn't use encryption, keep a close eye on it, and think twice about using it to store sensitive data. □

JOE KISELL is the senior editor of TidBits (www.tidbits.com) and the author of numerous e-books about Mac OS X (www.takecontrolbooks.com).

Keep Your Secrets with Mail

Sending something confidential via e-mail is the equivalent of writing it on the back of a postcard. Every e-mail message passes through dozens of servers, and it's not difficult to intercept data anywhere along the line. If you want to keep messages private, you must encrypt them. Luckily, there's a simple—and free—way to set up Apple's Mail (in Mac OS X 10.3 and later) to encrypt and digitally sign messages.

E-mail Protection Basics

Most e-mail is not sensitive enough to require constant protection against snoops. If you occasionally need to e-mail a confidential file to someone who uses Mac OS X, just send an encrypted disk image (see "Disk Utility's Hidden Talents" at macworld.com/1663). However, if you often send messages that contain important business information or top secret rendezvous instructions, digital signatures and encryption can help.

It's relatively easy to forge the name and address in the From header of an e-mail, so how can you be sure that the messages you receive are coming from the right sender? And how can you make sure no one is altering messages en route? Digital certificates act as unique fingerprints to help prove senders' authenticity and allow you to sign your e-mail messages digitally. You transmit your digital certificate—a secret key, comprising a series of seemingly random letters and numbers—along with your e-mail messages, and you receive others' certificates along with theirs.

Digital certificates are issued by organizations that the broader Internet community considers reliable. These organizations guarantee their certificates' trustworthiness. Valid certificates prove that senders actu-

ally own their e-mail addresses, but not necessarily that they are who they say they are (see "The Key to Security"). For that, you need something like Thawte Web of Trust certification (macworld.com/1666), which requires a notary to validate the person's identity.

To check certificates you receive, open Keychain Access (/Applications/Utilities). Click on Certificates in the Category pane, and then click on a certificate to see what organization appears in the Issued By line. If Keychain Access cannot verify the signer, it will display a warning in red.



Get Certified

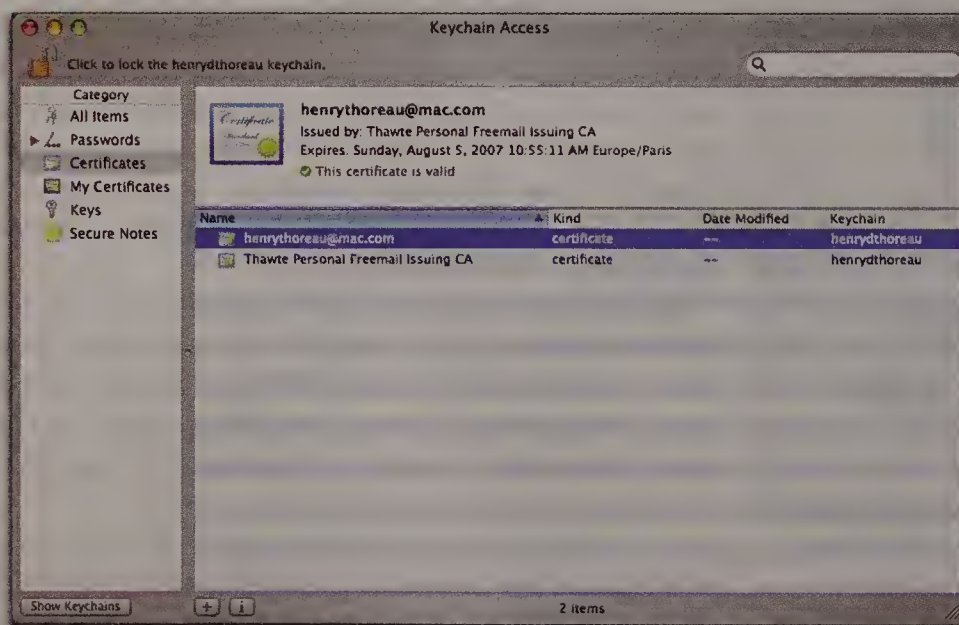
To use a digital signature in Mail, you need your own certificate. I recommend getting one from Thawte (www.thawte.com), a division of VeriSign that provides free personal e-mail certificates.

To begin, go to the company's Personal E-Mail Certificates page (macworld.com/1664). Getting the certificate involves filling out several forms, agreeing to Thawte's terms and conditions, entering your name and e-mail address, setting up a password, and then selecting a number of questions and entering answers as security checks should you lose your password. Next, you'll receive an e-mail message containing a Web link to confirm your e-mail address, along with two special "probe" and "ping" codes to copy and paste into the Web form.

You then log in to the Personal Certification System Home Page and request an X.509 certificate. A pop-up window lets you choose from a variety of Web browsers. If you use Safari (which isn't on the list), choose the default Mozilla Firefox/Thunderbird format and then click on Request. Follow the instructions on the next few pages, accept the default extensions, continues

The Key to Security

Check a digital certificate's validity in the Keychain Access utility. A valid certificate guarantees that the sender owns the e-mail address, but it doesn't confirm his or her true identity.



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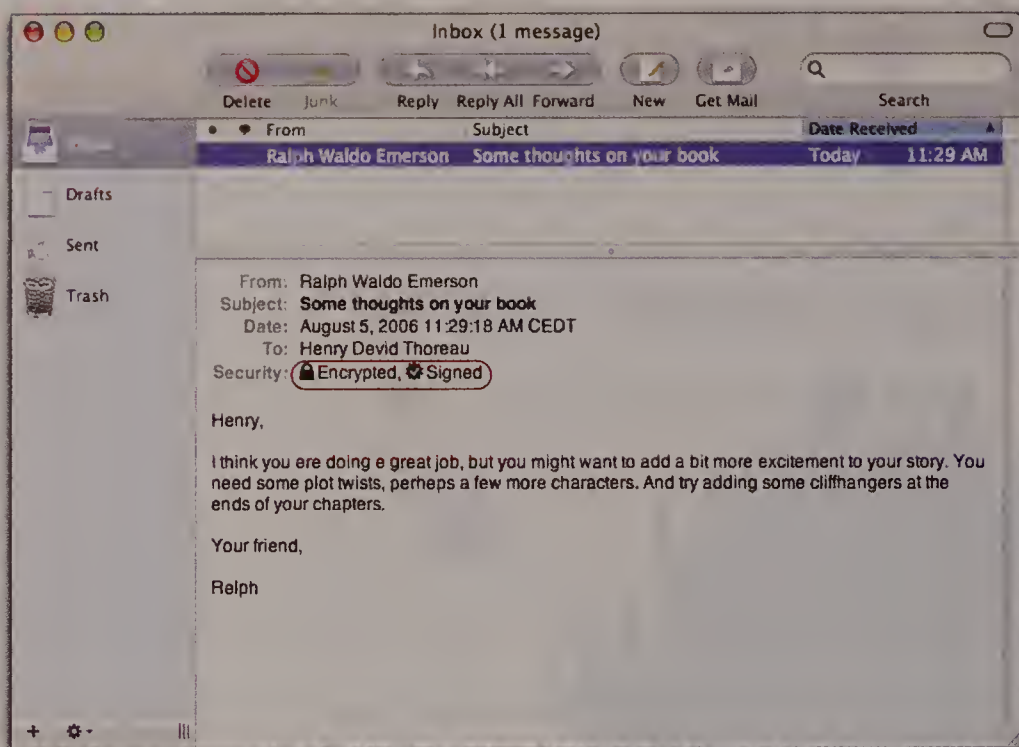
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Signed, Sealed, and Delivered

Mail's Security header shows whether a message is encrypted and/or digitally signed.

select a level of protection (2,048 bits is the default), and click on the Finish button.

On the next page, click on the Certificate Manager link. You'll see that your status reads "pending." Click on View Certificate Status after a while, and when the status reads "issued," click on the Navigator link. Now click on the Fetch button to obtain your certificate.

When Safari begins to download the certificate, you'll see a security warning; allow the file to download. Once it does, Keychain Access automatically opens it and adds it to your list of certificates. (These instructions work with Tiger. If you're using Panther, go to macworld.com/1665 to see how to add a certificate to your keychain.)

Back up your certificate, because you won't be able to download it again. You can either store it in an encrypted disk image or, if you back up your keychains, use Keychain Access as a storage location.

Sign Your Mail

To send digitally signed e-mails, you don't need to do anything. Now that you have a certificate, Mail does this for you automatically. You can, however, turn off your digital signature. At the very right of Mail's New

Message window, you'll see a star icon. Click on it to toggle the signature off and on.

Mail automatically sends your certificate information along with any messages you digitally sign and encrypt. Send a digitally signed message to another user who has Mail (in Mac OS X 10.3 or later), and your certificate is added automatically to that user's Keychain. If your friend uses another e-mail client that supports such certificates (most modern e-mail programs do), it will most likely manage the certificate in a similar manner. If your friend uses a Web-based e-mail service, he or she will see this certificate as an attachment and won't be able to use it within the Web interface. (See "Web Mail Protection" for one Web-based e-mail option.)

Receive Signed Messages Receiving signed messages is, like sending them, transparent in Mail—unless the message encounters a glitch along the way. Each message will contain a Security header that says whether it is signed or encrypted (see "Signed, Sealed, and Delivered"). If you receive a message that has been altered after it was sent, Mail displays a conspicuous message saying that it is unable to verify the message signature. That means either someone has fiddled with your message in transit or the message got corrupted. Your best bet is to contact the original sender to make sure that he or she sent the message.

Scramble Your Mail

Encryption turns a message, and any attachments, into gobbledygook for people who don't have the secret decoder ring—in this case, the digital certificate. (You can actually encrypt e-mail messages without having your *own* certificate. Senders use recipients' certificates to encrypt e-mail and recipients use their own certificates to decrypt the messages.)

Encrypt Messages If you have another person's certificate in your keychain, you can use Mail to send him or her an encrypted e-mail. (To make sure you've swapped certificates, first send a message to the person and ask for a reply.) Open a new message in Mail (File: New Message), address it to the person, and then click on the Encryption icon (a lock) at the right of the message window's header. Compose your e-mail as you normally would and add any attachments you want (they will be encrypted as well).

When the recipient opens the message, he or she will be able to read its contents and save any files you sent without doing anything special. But if anyone else intercepts the message, that person will see gibberish. If there's a problem with the recipient's certificate, or if the message gets corrupted or changed in transit, he or she will see the message "Unable to decrypt message." In that case, the recipient may need to check that he or she has an up-to-date copy of your certificate. □

KIRK McELHEARN is the author of many books, including *How to Do Everything with Mac OS X Tiger* (McGraw-Hill Osborne, 2005). Thanks to Michael Tennes for providing technical advice for this article.



CHECK IT OUT

Web Mail Protection

Want protection when you use Web-based e-mail? A new service, Freenigma (www.freenigma.com), offers just that, providing a simple encryption system for Gmail, Yahoo mail, Hotmail, and other services. All that's required is Mozilla Firefox and a special Firefox extension (which means that you probably can't use this encryption on a public terminal.) Freenigma is a simple way to harness security features for your Web-based e-mail accounts.



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- Aperture and Automation
- Mac OS X: Perfect for Photographers

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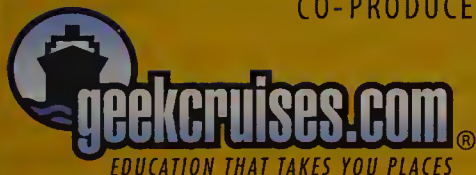


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Macworld
THE MAC PRODUCT EXPERTS

Mac OS X Hints

The Insiders' Tips You Won't Get from Apple

Stop Clicking on Dialog-Box Buttons

Don't reach for your mouse when you encounter dialog boxes that require clicking on a button—for example, Don't Save, Cancel, or Save. Often, you can use your keyboard instead.

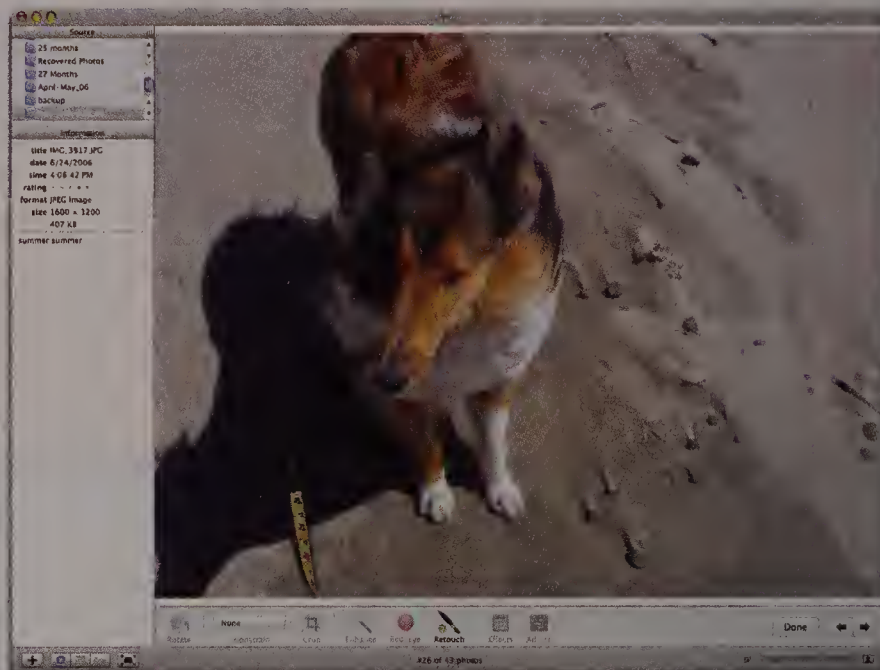
If you've activated Full Keyboard Access, you can use the tab key to cycle through a dialog box's buttons (see "Plug into Keyboard Power" for details). Then press the spacebar to activate the selected button.

Alternatively, in most applications, you can use these shortcuts: ⌘-D for the Don't Save button, ⌘-C for Cancel, and ⌘-S for Save. To save a keystroke, try leaving out the ⌘ key. Notably, this works in Microsoft Office 2004 applications and in Apple's iTunes. For example, in iTunes, if you select a song in your library and press ⌘-delete, you'll see a dialog box with three buttons: Cancel, Keep Files, and Move To Trash. Press C, K, or M, and you'll activate the corresponding function.

Access iPhoto 6's Hidden Tools

Apple's iPhoto 6 (part of the \$79 iLife '06; macworld.com/1131) has some nice built-in editing tools, including Red-Eye and Retouch. But you can make these tools even more useful by activating a super-secret advanced editing mode. In the advanced mode, you'll be able to control the size and strength of the Retouch brush, as well as the size and brightness of the Red-Eye tool.

Start by going to iPhoto: Preferences, clicking on the General tab, and making sure your settings are right. You can't access the advanced mode if you've told iPhoto to launch another application for image editing. iPhoto also won't stay in the advanced mode if you choose to edit each image in a separate window. Instead, choose Edit In Main Window from the Edit Photo pop-up menu.



iPhoto's Secret Weapon Use iPhoto 6's hidden advanced mode to gain more control over the Red-Eye tool and the Retouch brush. The advanced Retouch brush, shown here, lets you control the intensity of the brush's effects.

Now double-click on an image to enter Edit mode. Select either the Red-Eye or the Retouch tool, press and hold the control key, and then press and hold the caps lock (yes, caps lock) key. Now, with both keys still held down, press 9. Nothing will appear to happen, and you won't hear any confirmation tone, but you've now activated the advanced editing mode. To verify this, press the tab key. You should see the cursor change shape, depending on which editing tool you've activated (see "iPhoto's Secret Weapon"). Press tab to cycle through each tool's different modes, including the default one. Here's what they do:

Retouch After pressing tab once with the Retouch tool activated, your cursor will turn into a round marquee with the number 0.50 below it. Using this cursor, you can resize the area the Retouch tool affects, as well as change the tool's strength. To adjust the area the tool covers, use the bracket keys—press the right bracket (]) to enlarge it and the left bracket ([) to shrink it; the marquee will change size accordingly. To adjust the tool's strength, press shift-] (to increase it) or shift-[(to decrease it). The number below the cursor will change to reflect your setting.

Press tab a second time with the Retouch tool activated, and you'll switch to the Lighten tool. It does just what you might expect—it lightens the area of the image under the tool's outlined circle.



WHAT'S ONLINE

> The Many Faces of Get Info

Learn about all three (yes, three) versions of OS X 10.4's Get Info window.

macworld.com/1629

> Copy Customized Color Pickers

Learn how to give multiple Macs, or multiple users on one Mac, the same customized color picker.

macworld.com/1630

> Convert PC PowerPoint Files

Save yourself some aggravation if you work with PowerPoint presentations from PC users.

macworld.com/1631

Plug into Keyboard Power

Although the computer mouse is a terrific invention, you may discover that you accomplish some tasks much more quickly by keeping your hands on the keyboard. Learning keyboard shortcuts is a great first step. The next time you access a menu, notice the key symbols to the right of some commands—you can press the indicated keys together to access those commands (see “What’s That Key?”). But you can do even more with the keyboard. Here are a couple of ways to plug in.

Access Finder Items A trip to the Keyboard & Mouse preference pane reveals a world of shortcuts for Finder items. Click on the Keyboard Shortcuts tab and scroll through the list until you see the Keyboard Navigation section. These keyboard shortcuts can help you cut down on needless trips to the mouse. Want to activate the main menu bar? Press control-F2, and the Apple icon will become highlighted. Then you can navigate through the menu bar with the arrow keys—press the left and right arrows to move between the menus, and press the up and down arrows to move between items within a selected menu.

Press control-F3 and then use the arrow keys to access Dock items in a similar manner. Press control-F8 and use the arrow keys to move through the items on the right side of your menu bar. (If you’ve activated the Scripts menu, for instance, this is a quick way to access your AppleScripts.) Don’t like a shortcut? Then reassign it—when you’re in the Keyboard & Mouse preference pane’s Keyboard Shortcuts tab, you can double-click on an entry in the Shortcut column and then reset the keyboard command by pressing the keys you’d rather use.

Turbocharged Tab Why reach for the mouse when you’re typing data into fields? In most spreadsheet and database programs, you can press the tab key to move to the next field. But by default, OS X won’t let you use

the tab key to move between every field on a Web form. To

solve that problem, go to the Keyboard & Mouse preference pane. Click on the Keyboard Shortcuts tab, and look down near the bottom of the pane, for the section labeled Full Keyboard Access.

To enable use of the tab key everywhere, click on the All Controls option. Now you’ll be able to use the tab key to move between every user-selectable object. You can see the difference in Safari. If you press tab before modifying the Full Keyboard Access setting, you’ll move between the address field and the Google search box, but that’s it. After you modify the setting, pressing tab will also cycle through Bookmarks-bar entries and toolbar icons.

Because there may be times when you don’t want to tab between every single user-selectable object, Apple has included a keyboard shortcut that toggles the two Full Keyboard Access settings—just press control-F7 (in any application) to switch between them.



WHAT’S THAT KEY?

THIS SYMBOL	STANDS FOR THIS KEY
⌘	⌘ (sometimes called the “command key”)
⌥	option
⇧	shift
⌃	control
⌫	delete (erases characters to the left of the cursor)
⌭	delete ⌭ (erases characters to the right of the cursor)

Use the bracket keys with this tool to enlarge or shrink the area affected. To get back to the default Retouch tool, press tab one more time.

Red-Eye Press tab with the Red-Eye tool activated to switch to the advanced Red-Eye tool. Its cursor looks like large crosshairs on top of a hole. Use the bracket keys to change the size of the tool’s area—this is quite useful, as you can home in on just the area of the eye that needs red-eye correction.

Another feature of the advanced mode is the ability to use a lighter red-eye correction. With the advanced tool activated, press and hold the shift key before clicking, and you’ll get a lighter fill than you get with the standard tool.

You’ll have to enter the advanced mode every time you launch iPhoto 6 (or every time you edit a photo, if you edit in a separate window).

Cycle Calculator’s Modes

OS X 10.4’s Calculator program (/Applications) has three modes—Basic, Scientific, and Programmer. To switch between modes, you can use the View menu or the keyboard shortcuts ⌘-1, ⌘-2, and ⌘-3. But when your hand is already on the mouse, there’s another way to toggle modes: just click on the green maximize button at the top left of the Calculator’s screen. Each time you click, the calculator cycles to a different mode.

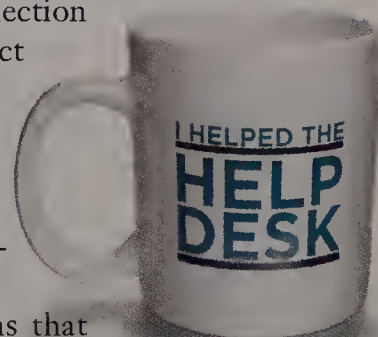
Sort Safari’s Bookmarks

It’s easy to add, view, and manipulate your collection of bookmarks in Apple’s Safari. Just select Bookmarks: Show All Bookmarks to open a window where you can move bookmarks around as you like. But one very simple feature is missing: the ability to sort bookmarks alphabetically. You can rearrange them manually, of course, but that’s just tedious.

True, you can download add-on programs that handle this task for you. For example, one of the many features you get with Hao Li’s \$12 plug-in Saft 8.3.4 (macworld.com/1627) is the ability to sort bookmarks directly within Safari. Going a step further, external bookmark managers such as Sheep Systems’ \$15 Bookdog 3.8 (macworld.com/0669) and Alco Blom’s \$25 URL Manager Pro (macworld.com/1628) can, among other things, sort your bookmarks. But if you don’t need all the other features of these programs, you don’t have to cough up some dough *just* to sort bookmarks. Here’s how to do it yourself.

First, open Safari’s Bookmarks window (Bookmarks: Show All Bookmarks). Make sure you can see your desktop and the Bookmarks window at the same time. Now drag the bookmark folder you want sorted from the Safari window to your desktop.

continues



Have a hint? Go to the Mac OS X Hints Web site (www.macosxhints.com) to share it. This column was based on tips from David Goetzka, Aaron Wyatt, and anonymous contributors. Each month, the author of our favorite tip receives the *Help Desk* mug.

programs or AppleScripts you place inside this Mail folder will be directly accessible from Mail. Switch back to Automator. Click on the arrow to the right of the Save As field in the dialog box you were working in before. Navigate to the new Mail folder you just created, and save your program.

Now you're ready to combine messages. Launch Mail, and ⌘-click to select a few messages. Click on the script icon in the menu bar. In the menu that appears, you'll see Combine Mail Messages at the bottom. Select it, and then wait while the workflow runs. When it's done, a new message will open, containing all of the previously selected messages. They're even separated by a nice dividing line, so you can see where each message starts. Print this new e-mail message, and you can read all the selected messages—without any wasted paper.

The screenshot displays the iWorkflows 2.0 interface. On the left, the 'Search' pane lists various actions, with 'Combine Mail Messages' selected. The main workspace on the right shows a workflow with three steps: 'Get Selected Mail Items', 'Combine Mail Messages', and 'New Mail Message'. The 'Combine Mail Messages' step is currently active, showing configuration options for 'Mail Items', 'Mail Message', and 'Text'. The 'New Mail Message' step is also visible, showing fields for 'To', 'Cc', 'Bcc', 'Subject', and 'Message'.

Mail Combiner Using a simple Automator action and the Scripts menu, you can easily print multiple Mail messages—without wasting paper.

Switch to the Finder, and open the folder. Choose the List view (View: List), and then close the window (see “To the Letter”). Drag the folder back into Safari’s Bookmarks window. Safari will treat it like a newly imported folder and add it to the list. Open the folder in the Bookmarks window, and you’ll see your bookmarks, sorted alphabetically.

The original, unsorted folder will still be in your Bookmarks list. Click on it to select it, and then press the delete key. (Remember to delete the folder from the Finder as well.) You can use this trick only to sort

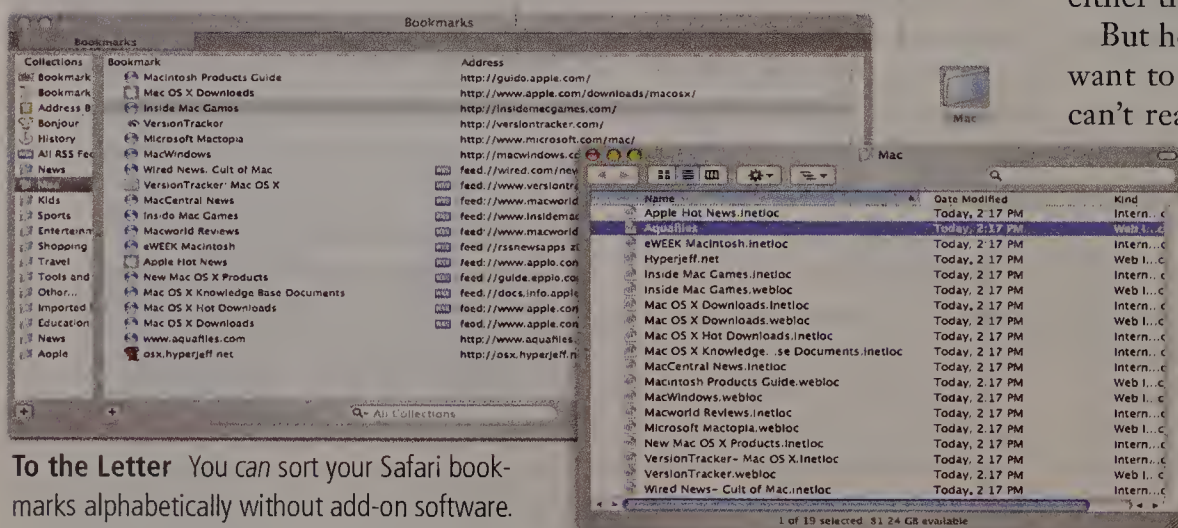
alphabetically. If you try to sort the List-view window by any other column heading—for example, Date Modified—and import the folder, Safari won't display the bookmarks in that order.

If you own an Intel-based Mac and have used Apple's Boot Camp to install Windows on it, then you know how to tell your Mac which OS to boot into: just hold down the option key at startup, and then use the arrow keys or the mouse to choose either the Windows partition or the OS X partition.

But here's a nifty alternative—good for when you want to impress your friends, as well as when you can't reach the keyboard after choosing to reboot.

Make sure you've got your Apple Remote in hand, and press and hold the Menu button during startup. The boot loader will appear, just as if you were at the machine.

From there, use the remote's forward and backward directional buttons to toggle between the two operating systems, and press play to activate the desired one. No muss, no fuss, and no keyboard required. ☐



To the Letter You can sort your Safari bookmarks alphabetically without add-on software. Just drag a folder full of bookmarks out of Safari to your desktop. View the folder's contents in the Finder's List view and then drag the folder back into Safari.

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Mac 911

Solutions to Your Most Vexing Mac Problems

Remotely PowerPoint

I recently bought a MacBook, which comes with Front Row and an Apple Remote. Is there any way to use that remote for Microsoft PowerPoint presentations?

Via the Internet

You've got a couple of options when it comes to controlling PowerPoint presentations with the Apple Remote.

The first is a bit of a kludge: you can export your slides from PowerPoint as graphics files, import them into Apple's iPhoto, and use Front Row and the remote control to play them as an iPhoto slide show.

To do so, open the presentation in PowerPoint and select File: Save As.

In the resulting sheet, choose JPEG, PICT, or TIFF from the Format pop-up menu; then provide a name. Click on Save, and each slide will be saved as an individual graphics file inside a folder that has the name you just provided.

Next, drag those files into iPhoto's library. Click on the Last Roll entry, select the images you just added, and choose File: New Album From Selection. Select the album and click on the Play button at the bottom right of the iPhoto window. In the Slideshow window that appears, disable the Automatic Ken Burns Effect option. Click on the Music tab and disable the Play

The simple stuff: Capture, edit, export

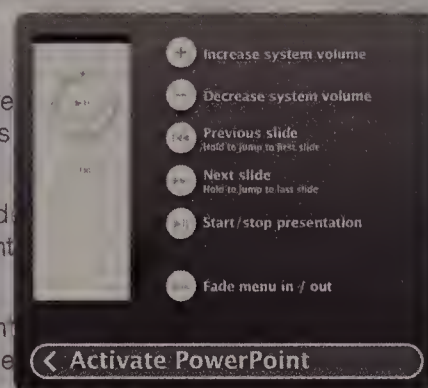
• To recap:

• Plug your FireWire cable into the back of the iMovie's FireWire port.

• Drag your video from iMovie to iPhoto and end point.

• Drag a title into iPhoto and the last scene.

• Share



Who's Your Buddy? Remote Buddy lets you use your Apple Remote with a host of applications.

Music During Slideshow option. Click on Save Settings to dismiss the window.

Now fire up Front Row, choose Photos, and select the album you created. When you click on Play, Front Row will try to play the presentation as a slide show. To prevent this from happening, click on the Play/Pause button to pause the presentation. Then use the Forward and Previous buttons to move from slide to slide.

While this solution works OK for basic slide shows, it has a couple of flaws. First, you'll have to put up with the gray Front Row navigation overlay. Second, any music and video elements in your presentation will be lost in iPhoto.

Your second option, which avoids these pitfalls, is to use the Apple Remote to control PowerPoint natively. To do this, I get help from IOSpirit's Remote Buddy (\$13; www.iospirit.com), which uses plug-ins to control a bunch of applications, including PowerPoint; Apple's iTunes, Keynote, Photo Booth, QuickTime Player, GarageBand, Exposé, and DVD Player; Elgato's EyeTV; VLC Media Player; RealPlayer; and Adobe Reader and Acrobat Pro (see "Who's Your Buddy?").

I've tried Remote Buddy on my Intel Mac mini, and it works as advertised. A free 30-day demo is available for your testing pleasure. If you're a do-it-yourselfer, you can create your own plug-ins, using the included Behaviour Construction Kit or using Xcode and Cocoa with the free SDK. Remote Buddy also works with Keyspan's RF Remote for Front Row.



TIP OF THE MONTH

Terrific Tagging

Because I import music from a variety of sources, my iTunes library has become cluttered with unsorted MP3 and AAC files that lack album, track, and even artist and song-name information. Fortunately, there's a great tool for labeling MP3 files, so you don't have to do it all by hand: Jay Tuley's free iEatBrainz (www.indyjt.com) will look for your music files' "digital fingerprints" on the free MusicBrainz (www.musicbrainz.org) database and give you a list of possible matches. You can quickly select the right ones and import the information you need. In conjunction with Chaotic Software's Media Rage (\$30; macworld.com/1421), it allowed me to label and add artwork to 450 unsorted song files in my iTunes library, in less than two and a half hours. If you're like me and cannot imagine having your Mac on without iTunes being open, this tool is definitely a must.

Bill Urbina

Managing .Mac and IMAP

I'd like to use Microsoft Entourage to create e-mail messages and save them as drafts when I'm offline, and then send them later via my .Mac account. But, whenever I save one of these drafts, my iBook wants to connect to the Internet—a problem when I'm using a dial-up connection while on the road. How do I make it stop?

Sibylle Eichstaedt

By default, Entourage IMAP accounts are configured so that messages, drafts, and junk mail—as well as inbox messages—are stored on the IMAP server. If you have an always-on broadband connection, this isn't a problem; Entourage saves everything to the server in the blink of an eye. But when you're logged off and your Mac is configured to use a dial-up account, it'll try to connect to the Internet every time you save a draft.

To put things right, open Tools: Accounts, double-click on your .Mac account, click on the Advanced tab, and deselect the Store Drafts In This IMAP Folder option. (You're welcome to deselect the sent-messages and junk-mail options, too.) Your drafts will now be stored in Entourage's local Drafts folder, and your iBook won't try to establish an Internet connection.

You can do the same kind of thing in Apple's Mail: open the Accounts preference pane, select the IMAP account, click on the Mailbox Behaviors tab, and deselect the Store Draft Messages On The Server option.

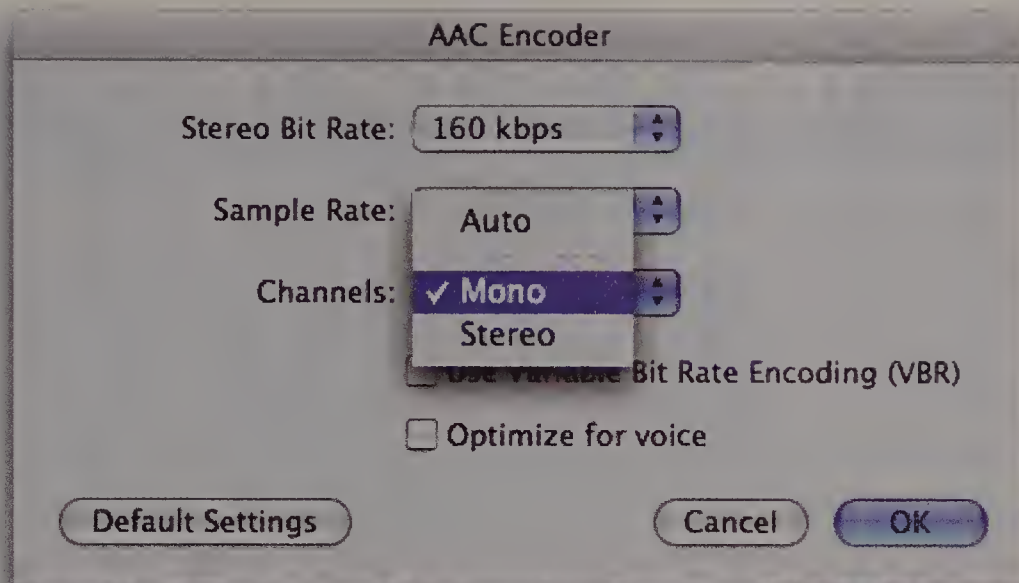
Dual-Monitor MacBook Pro

Is it possible to use a 30-inch Apple Cinema Display and a 23-inch Cinema Display at the same time with a 17-inch MacBook Pro?

Richard Troxel

It is. You could try using Matrox's DualHead2Go (\$169; macworld.com/1633) to split a VGA signal and send it to two attached monitors. (Blogger Aniel Sud describes doing so at macworld.com/1634.) But there are two catches: I honestly don't know whether the DualHead2Go has enough power to drive the 30-inch Cinema Display (Aniel was using two Westinghouse 17-inch monitors). And the picture in this setup will be split between the two monitors, so windows and dialog boxes that would normally appear in the middle of a single monitor may straddle the two.

The preferred way to handle this task is to install an additional video card. You could do this with an older PowerBook via its PC Card slot and a device such as VillageTronic's VTBook (\$249; www.vtbook.com) or Digital Tigers' SideCar Mac (\$1,299; macworld.com/1635). Unfortunately, the MacBook Pro doesn't have a PC Card slot. Apple may have been forward-looking in equipping the laptop with the faster ExpressCard/34 slot, but there are precious few ExpressCards out there and no ExpressCard video cards. A Digital Tigers rep said that an ExpressCard version of the SideCar may be available by the time you read this.



Go Mono, Young Man

I can hear out of only one ear, so I'd like to adjust my iPod's left-right balance. I can't see a way to do this on the iPod itself, but is there by any chance a balance option in iTunes?

Ross Morris

Neither the iPod nor iTunes offers a balance control. But there is another solution: Go Mono.

The next time you're ripping music into iTunes, go to its Preferences, select the Advanced pane, and click on the Importing tab. Choose the encoder you like from the Import Using pop-up menu, and then select Custom from the Setting pop-up menu. In the resulting window, choose Mono from the Channels pop-up menu. Then rip away.

You can also convert songs already in your library to mono. To do so, select some tracks in your iTunes library and choose Advanced: Convert Selection To Name Of Encoder. The files will be encoded so that all the music is offered in both the left and the right channels (see "One Track Mined").

To avoid compressing your files with different encoders (and thus altering the sound more than you need to), use the same encoder the files were originally encoded with (unless they are uncompressed AIFF or WAV files).

You could reencode your entire library, but it would be much easier to get a cable with a male stereo miniplug on one end and a female miniplug jack on the other; it will combine the two stereo signals in one mono signal. Plug your headphones into this cable, and you're good to go.

iSight Alternatives

Other than Apple's iSight, which Web cameras can I use for video chatting?

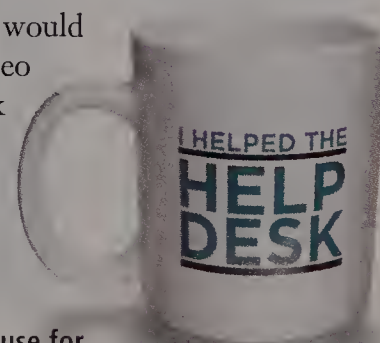
Beth Belmonte

By default, iChat supports the iSight and FireWire Web cams. You can also video-chat your way to happiness with a USB Web cam (assuming it's compatible with OS X, of course) if you get a copy of Ecamm Network's iChatUSBCam (\$10; macworld.com/1637). This utility convinces iChat to accept input from USB cameras. It also enables

continues

One Track Mined

Use the Importing tab of iTunes' Advanced preference pane to turn two stereo tracks into a mono track.



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TOOLS OF THE TRADE

Wielding Power Wisely

While I was away on an extended business trip, my home network—the one my wife depends on to get her work done—went kablooeey. As I was far from home and largely unable to provide the tech support she so desperately needed, she called in a local expert to put things right. He not only put the network back together, but also reworked the power setup for my home office's complex system of computers. In this month's *Tools of the Trade*, I ask that you do as I say rather than as I did, and get your Mac power system in order, too.

UPS Delivers You need dependable power that protects your computers from power surges and brownouts, and keeps the juice flowing long enough for you to save your work and shut down your machines properly. An uninterruptible power supply (UPS) does just that. In the bad old days, I relied on one UPS to keep multiple Macs and a load of peripherals on the job. Bad idea. The pro brought in two APC Back-UPS 1200VA UPSs (\$200; apc.com) and did the right thing: He connected the computers and monitors to the power ports (on the back of one UPS) that are supplied with a battery backup, so they'll stay alive when the rest of the office goes dark. Other peripherals that need to remain alive during blackouts—external hard drives, switches, routers, and the DSL

modem—also get a backup battery outlet, on the other UPS. The laser printer, which sucks enormous amounts of power when starting up and printing, is plugged into one of the power receptacles that provides surge protection but no battery power. Nonessential peripherals—the ones I can live without during a blackout, such as my iPod and PDA chargers, scanner, and PVR—also get surge protection but no backup. Although I no longer use a modem, you might. If so, take advantage of the phone-line connector on the back of your UPS: electrical spikes can travel through phone wires, too.

Take a Test Even though I was already using a UPS, I had never bothered to find out if it worked properly. Turns out that the one I had was shot from being so overloaded. Had I cut the power to it to see if its backup functions really worked, I would have discovered the problem and divided its load among a couple more UPSs.

Share the Power I'm lucky enough to have two electrical circuits in my office. The pro took advantage of this and split the UPS units and various power strips I have between those circuits. Previously, I overloaded one circuit while leaving the other twiddling its little electric thumbs. Not smart, as this creates a potential fire hazard.

videoconferencing on Macs that iChat doesn't natively support.

Ecamm provides a list of the cameras that iChat-USB Cam works with. Note that many of those USB Web cams require the open-source Macam driver (macworld.com/1667) to work with OS X.

Better Living through iPhoto Sharing

I often travel with my laptop and store trip pictures in iPhoto. When I return home, what's the best way to transfer my photos from my laptop iPhoto to my desktop iPhoto?

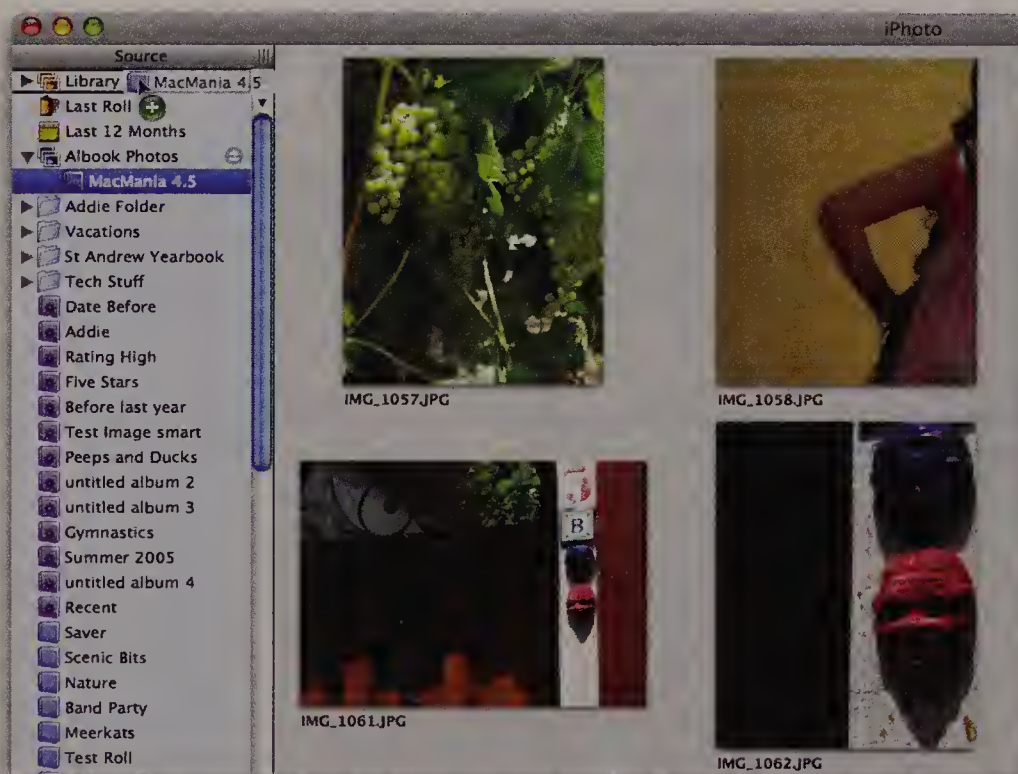
H. Thomas Staton

There are many ways to do this, but I prefer the sharing method. For this to work, the two computers must be able to talk to each another over a Bonjour network.

First, launch iPhoto on both computers. On the laptop, enable the Share My Photos option in iPhoto's Sharing preference pane. On the desktop Mac, turn on the Look For Shared Photos option in this preference pane. On the laptop, create a new smart album that's defined by the dates when you loaded your travel pictures on your laptop—Date Is In The Last 2 Weeks, for example.

On the desktop Mac, select the laptop's shared photo library, click on the triangle to reveal that library's albums, choose the smart album you just created, and drag its icon to iPhoto's Library icon (see "Snaring through Sharing"). The photos will be copied from one Mac to the other. Unlike iTunes, iPhoto allows you to copy shared files.

There are other ways to accomplish your goal. You could use iPhoto's Share: Burn command to burn photos to a recordable CD or DVD. You could sync a color iPod to your laptop, turn on photo synchronization in iTunes, enable the Include Full-Resolution Photos option, plug the iPod into your desktop computer, and copy those images from the iPod into your iPhoto library. Or you could set up a traditional network, mount your desktop Mac's hard drive, select the album you want to export on your laptop, choose File: Export, click on the File Export tab in the Export Photos window, enable the Full-Size Images option, click on Export, and choose your desktop Mac's networked drive as the destination for the exported photos. □



Snaring through Sharing You can snag the images from a shared iPhoto library simply by dragging images or albums to your library.

Senior Editor CHRISTOPHER BREEN is the author of *Secrets of the iPod* and *iTunes* and *The iPod and iTunes Pocket Guide* (both Peachpit Press, 2006).

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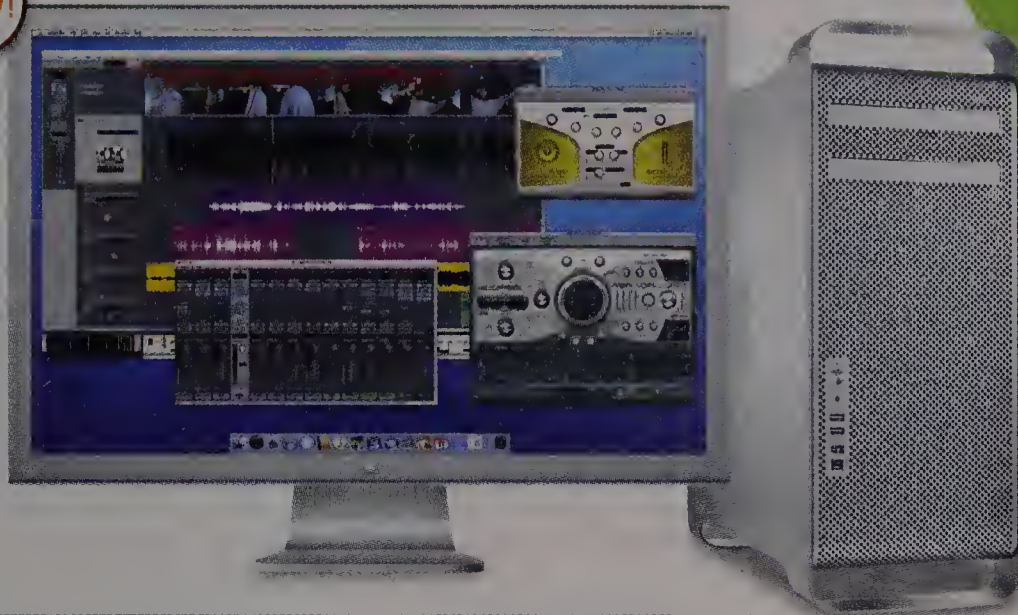
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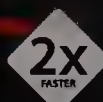
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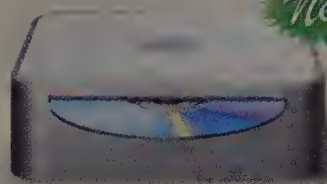
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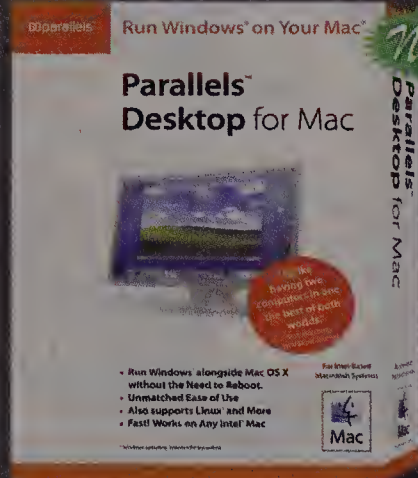
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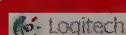
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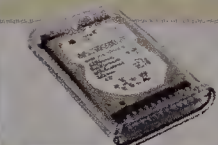
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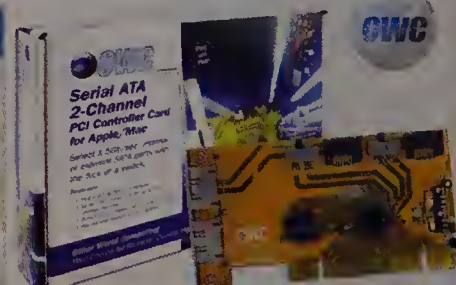
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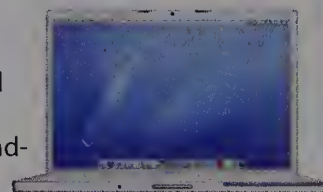
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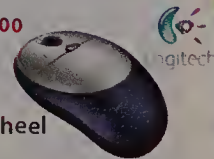
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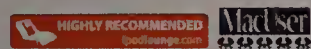
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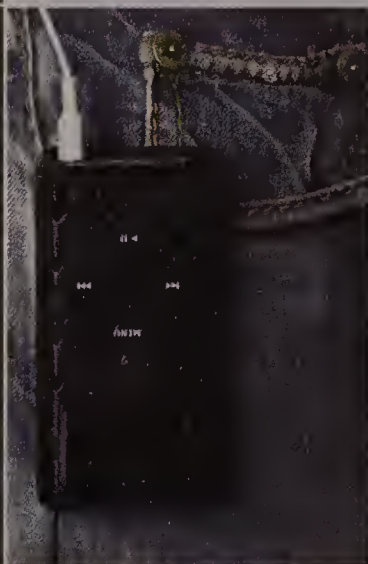
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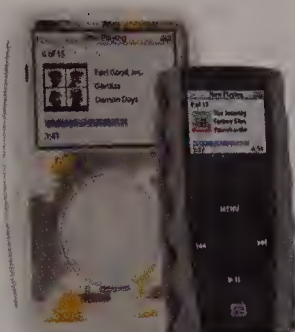
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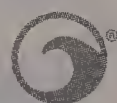
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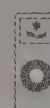


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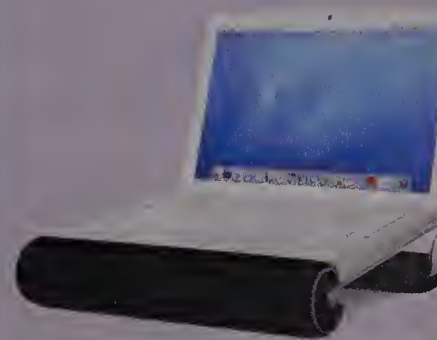
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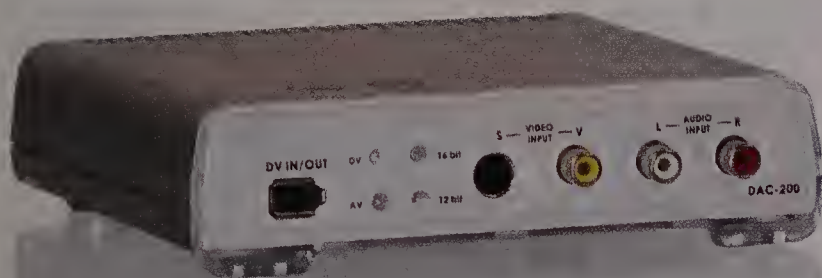
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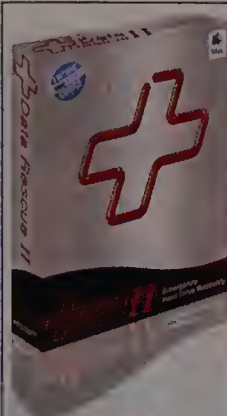
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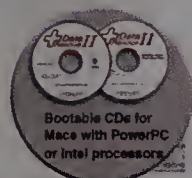
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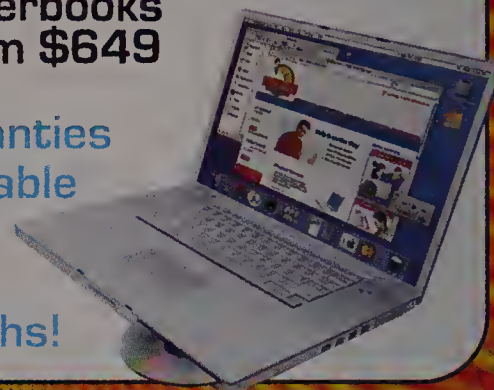
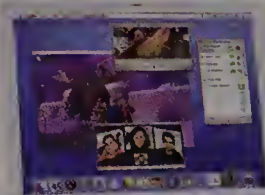


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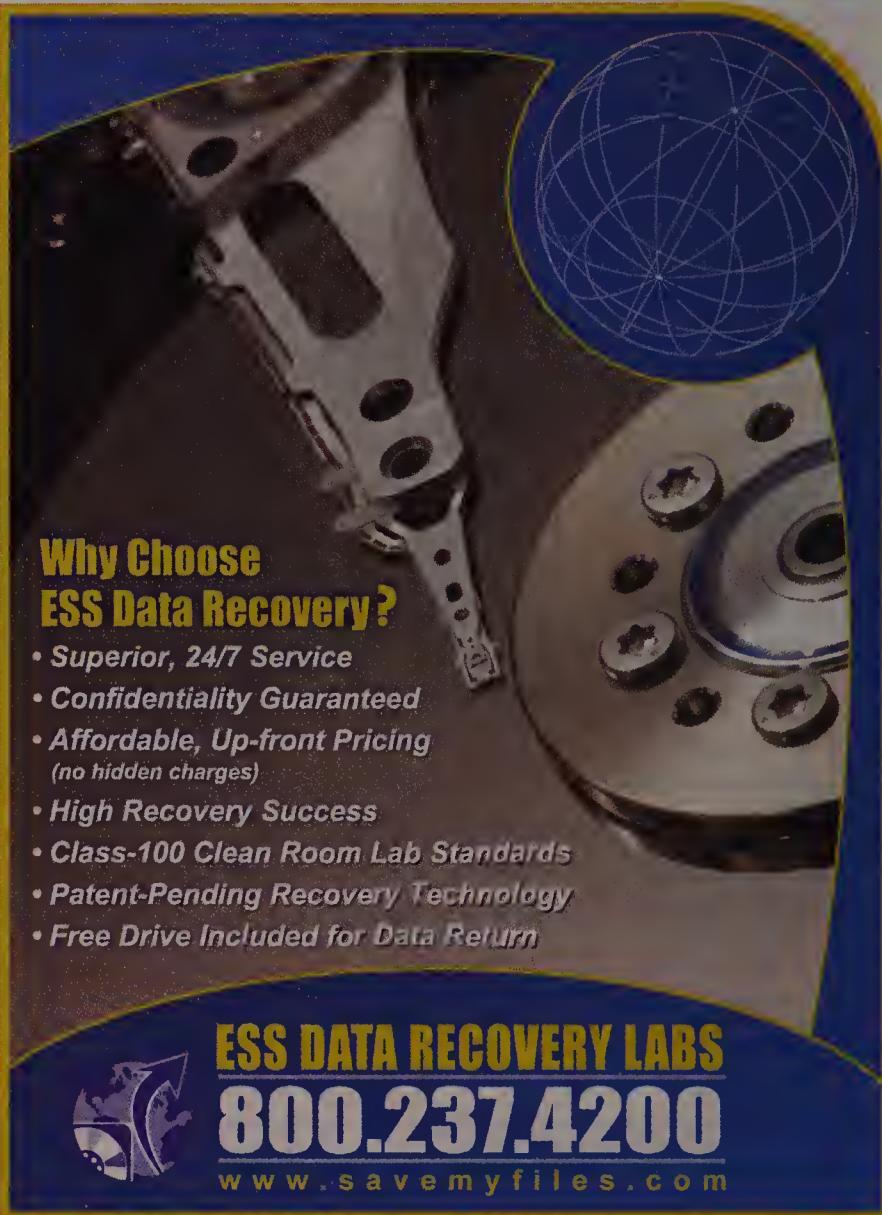
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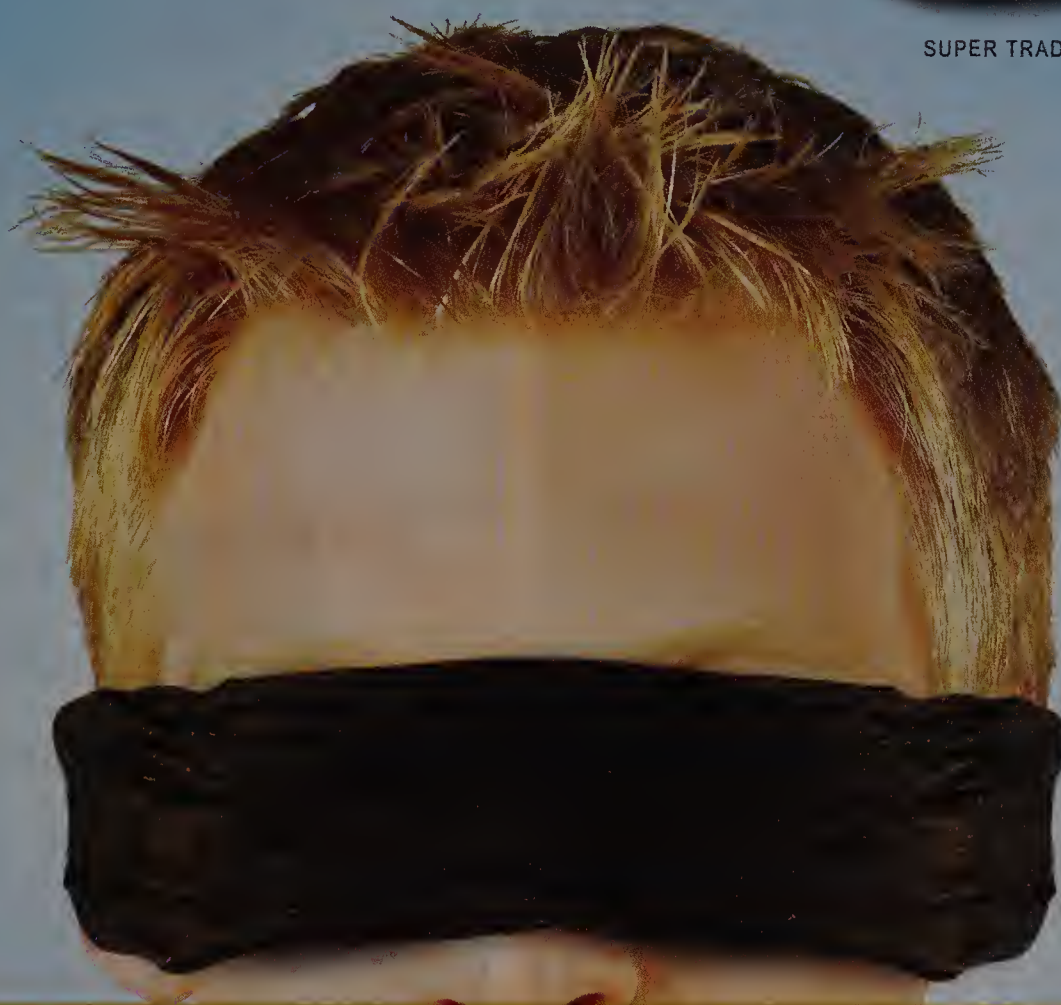


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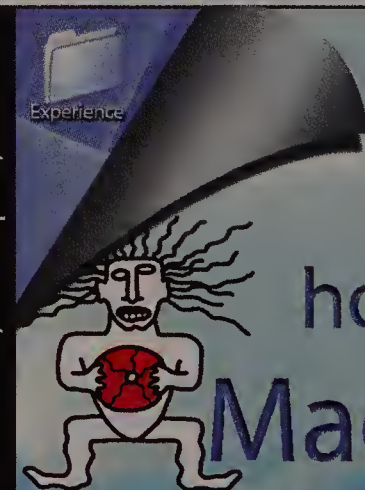
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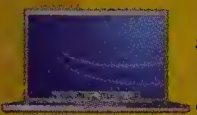
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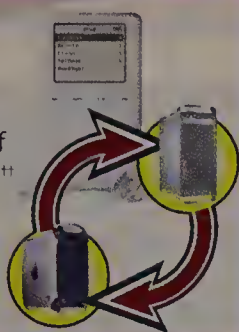
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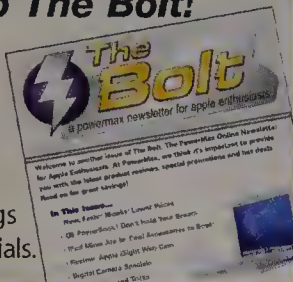
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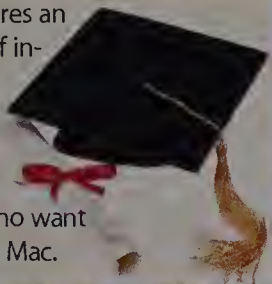
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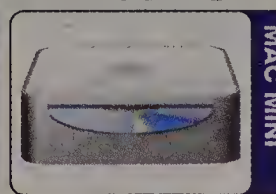
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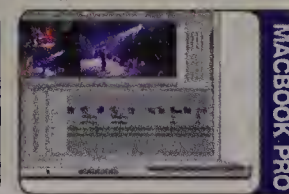
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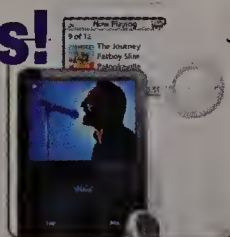
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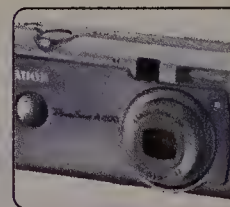
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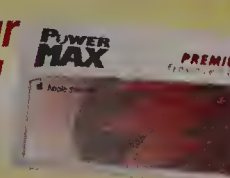


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GORILLAPOD SLR

Even amateur photographers know how useful a tripod is, but not everyone wants to carry one around. That's where Joby's \$50 Gorillapod SLR (5.8 ounces) comes in handy: use it as a nine-inch tabletop tripod or, like its compact sibling for smaller digital cameras, as a flexible but sturdy mount that wraps around a stationary object, such as a tree branch or railing. A removable, lockable clip—slim enough to keep attached to your SLR's tripod connector—lets you quickly mount your 2.5-pound or lighter camera to, and remove it from, the Gorillapod SLR (www.joby.com).—DAN FRANKS

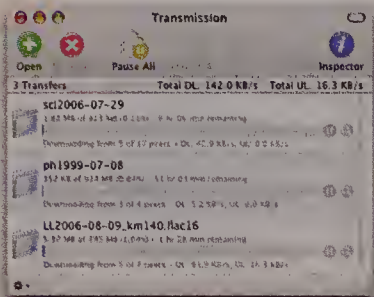
Transmission 0.6.1

I admit it—I'm addicted to BitTorrent. This unique peer-to-peer (P2P) file-sharing system has changed the way I acquire live music (yes, there are legal uses). The official client works pretty well, but it doesn't run natively on Intel Macs and is pretty bloated. Another popular

P2P client, Azureus, has a convoluted interface and is a (yuck) Java app.

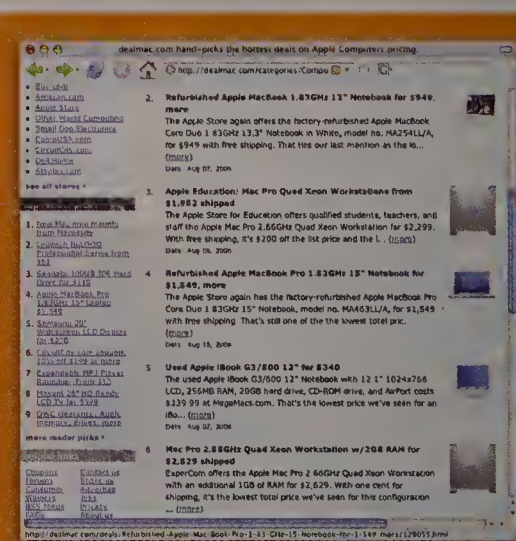
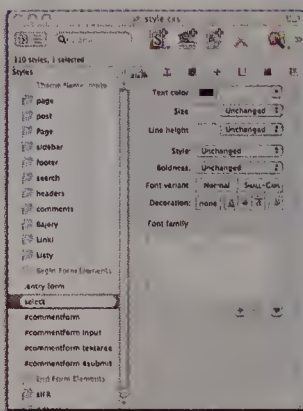
So I've started giving the free, open-source Transmission equal time on my

Macs. It's fast, Universal, and has a clean and pleasing interface. Transmission is missing a few features I'd like, but it shows a lot of potential (transmission.m0k.org).—JONATHAN SEFF



CSSEdit 1.7.2

If you design or maintain a blog or Web site, MacRabbit's \$25 CSSEdit 1.7.2 may be one of the most useful utilities you'll ever find. Cascading Style Sheets (CSS) allows you to change items, such as fonts, across an entire site by changing a single file. But as with most code, CSS can sometimes be a little difficult to understand. CSSEdit provides a code view for the more experienced user, as well as a preview so you can see what your changes will look like. It also allows you to do other things, such as extract a CSS file from a URL—handy if you want to mimic something you see on the Web (www.macrabbit.com).—JIM DALRYMPLE



Dealmac

I don't like paying any more than I have to for my favorite gadgets. So I was happy to come across the dealmac Web site—a great place to find bargains on hardware and software for your Mac and related gadgets, including digital cameras, iPod accessories, hard drives, and PDAs. Recently, I spotted a nice RAM bargain for my MacBook—too bad I had already purchased more RAM. At least now I know where to look in the future. Since then, I've seen great offers for backup software and SD memory cards (dealmac.com).—CYRUS FARIVAR

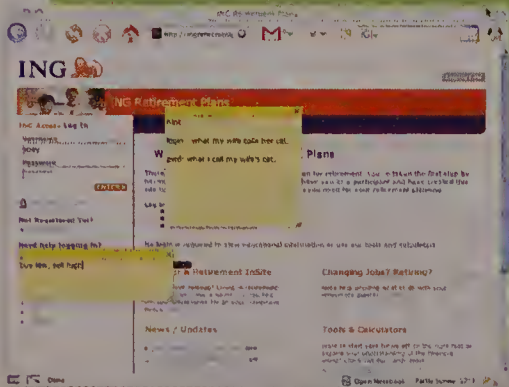
WHAT'S HOT

Brought to you by John Moltz of the Crazy Apple Rumors Site (www.crazyapplerumors.com)

- 1 Apple agrees to pay Creative \$100 million to settle iPod patent disputes. "But someday," Steve Jobs told Creative chairman Sim Wong Hoo, "I may call upon you to do a service for me."
- 2 Apple recalls 1.8 million laptop batteries due to the potential fire hazard they pose to customers. The sound you just heard was 1.8 million people quickly moving their PowerBooks and iBooks away from their laps.
- 3 Hackers at the Black Hat security conference demonstrate a wireless takeover of a MacBook. Onlookers were further stunned when they pulled a white rabbit out of the SuperDrive slot.
- 4 Apple announces that Steve Jobs won't be giving the keynote at Apple Expo Paris. For the record, he also won't be delivering the State of the Union address or singing the national anthem at the World Series.

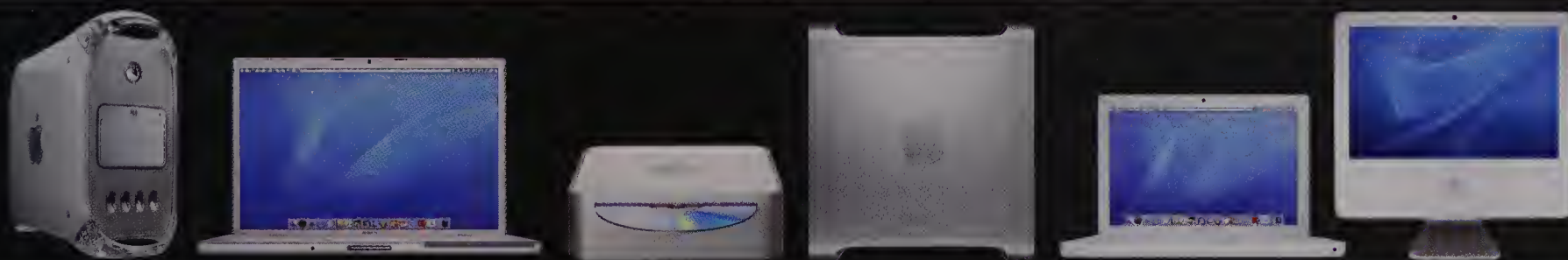
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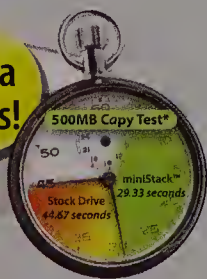
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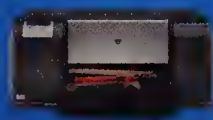


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